TT OPTIMIZATION PROJECT REPORT

2G 3G 4G OPTIMIZATION AREA :

SOUSSE

MONASTIR

MAHDIA

KAIROUAN

ERICSSON RAN TEAM ERICSSON TUNISIA 2023-12-20

Agenda

- WORKING ZONE
- PROJECT ORGANIZATION
- WHAT WAS DONE (Week 38 ,Week 48,Week 49,Week 50)
- COMMENTS AND RECOMMENDATIONS
- CONTRACTUAL KPIS
- KPIs PROGRESS IMPROVEMENT
- CELL AVAILABILITY & HW ISSUE STATUS
- AUDIT SAMPLE ACTION RESULT
- PERFORMANCE ACTIONS
- CR STATUS
- NEXT ACTION PLAN
- QUESTIONS

WORKING ZONE

Region/sites	2G	3G	4G	Total sites	AREA KM2
Sousse	161	171	156	488	2 669 km²
Monastir	137	147	123	407	1 019 km²
Mahdia	92	100	80	272	2 966 km²
Kairouan	97	95	88	280	6 712 km²

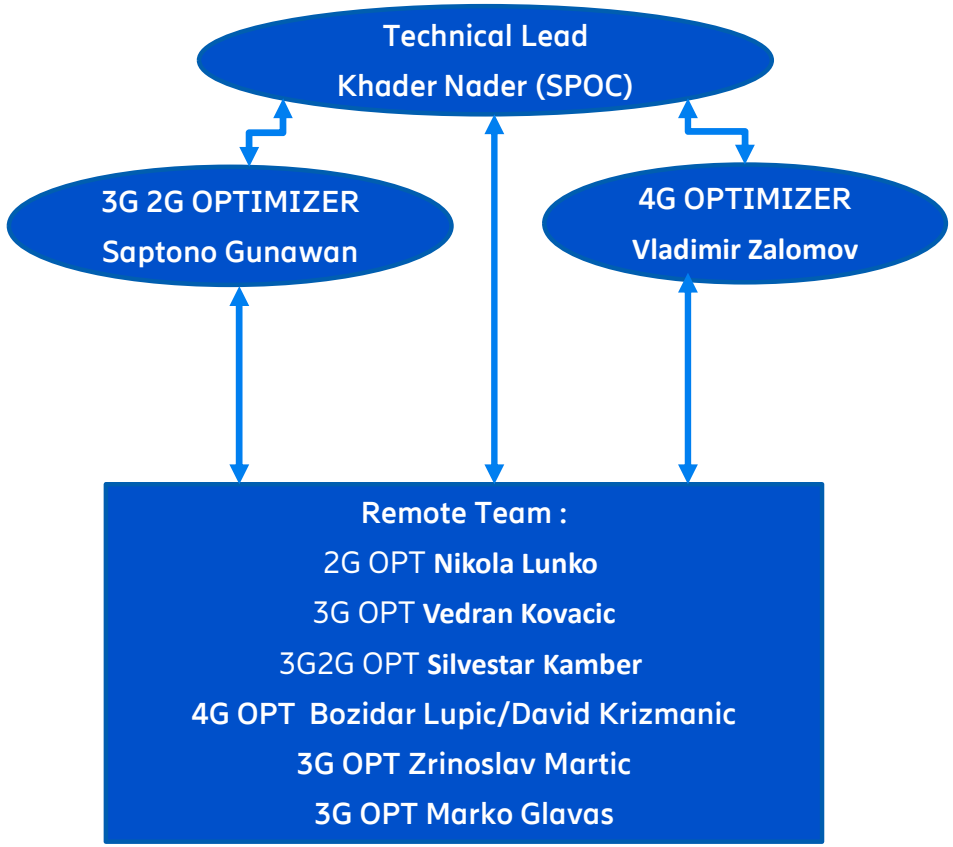
PROJECT ORGANIZATION

CPM RAN
ZIED BARKIA

Local Optimization Support
Driss Tahiri

Drive test Team
On demand

Local Integration Team (CR)
+Rollout TEAM
Bilal Laatat/Mahdi Kzadri
(CR/Troubleshooting/ Support)
Samih Akremi (IM)
Mahemd Louizir (Support)



On site

Remote

WHAT WAS DONE

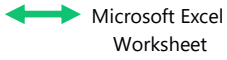
Network Planning Audit :

- RF DESIGN AUDIT (3G PSC , 4G PCI , 2G BCCH ,LAC,RAC,TAC : Correction of collision and conflict)
- 2G 3G 4G neighboring Plan Audit (493 2G to 3G ,340 3G to 3G, 4G ANR tuning)
- Audit CGI CORE BC definition

Network HW/Transmission Issues :

- Identify Top Worst cells Due HW/Transmission/Synchro/Power_outage issues (Continuous Activity)

Features & Parameters Alignment :

- 2G 3G 4G Optional Features Activation Plan
- 2G 3G 4G features Audit (basic and optional)  Microsoft Excel Worksheet
- 2G 3G 4G Parameters Alignment and Audit

Mobility Strategy :

- 2G 3G 4G IDLE/Mobility Strategy Proposal (shared & meeting organized)

WHAT WAS DONE

WHAT WAS DONE ON WEEK 46:

- Tuning parameter 2G and 3G related Mobility and Retainability partially done on W46, will continue based on Worst performing cells analysis.
- Add NB adjacencies 2G-2G, 2G-3G, 3G-3G partially done to improve HOSR and DCR due to HO on BSOUEVO, BMOKEVO. Will continue based on worst performing cells.
- Optimize Parameter related Retainability, accessibility and mobility (BsRXMIN, MSRXMIN, HoType, usedFreqThresh2dEcno, usedFreqThresh2dRscp, HoType) based on worst performing analysis.
- Optimize Idle Parameter/Selection Re-selection to improve Accessibility CS and PS.
- Escalated IUB Congestion on several sites to customer (detail sites on the last slide).
- Escalated sites have HW iisues, alarm related HW.
- 3G PS Drop initial analysis, with result need to improve availability issues in Kairouan(Reducing celldowntime), Transport congestion will reduced RAB Failures and RRC Failures.
- 2G Re-dimensioning SDCCH included SDCCH shifted to better Rxqual.
- Optimize Irat parameter, Isho parameter, Shoft Handover Parameter to improve Mobility.
- Tunning BCCH for several cells in Sousse and Kairouan to improve accessibility and retainability.
- Tuning T313, Maxactiveset, RadioLinktimeout to improve accessibility and retainability
- Changing configuredMaxTxPower for alignment LTE RS RE Power on Urban area on cells with high DCR
- Reactivating features Accelerated Inter-Frequency Load Balancing in Sousse
- Tuning parameters for improving Accessibility and Retainability on worst cells
- Adding internal G2G relations for sousse area
- Adding F2 10738 frequncy in 2G report measurement for fast returning to 3G in Sousse
- Msrxmin and Bsrxmin tuning for top worst cell in term of number of TCH drops in SOUSSE area
- Lte Eutran Cell Relations blacklisting and Offsets setting tuning for Sousse and Kairouan

WHAT WAS DONE

WHAT WAS DONE ON WEEK 47:

- Changing configuredMaxTxPower for alignment LTE RS RE Power on Urban area on cells with high DCR
- Reactivating features Accelerated Inter-Frequency Load Balancing in Sousse
- Tuning parameters for improving Accessibility and Retainability on worst cells
- Tuning parameter 2G and 3G related Mobility and Retainability partially done on W47, will continue based on Worst performing cells analysis.
- Add NB adjacencies 2G-2G, 2G-3G, 3G-3G partially done to improve HOSR and DCR due to HO on BSOUEVO, BMOKEVO. Will continue based on worst performing cells.
- Optimize Parameter related Retainability, accessibility and mobility (BsRXMIN, MSRXMIN, HoType, usedFreqThresh2dEcno, usedFreqThresh2dRscp, HoType, Gamma, SAS, RET, PSC) based on worst performing analysis.
- Optimize Idle Parameter/Selection Re-selection to improve Accessibility CS and PS.
- Escalated sites have HW iisues, alarm related HW.
- Optimize Irat parameter, Isho parameter, Shoft Handover Parameter to improve Mobility(continuing).
- Tunning BCCH, BSIC and DCHNO for several cells in Sousse and Kairouan to improve accessibility and retainability partially done, will continue.
- Deactivate Feature CtrlFDpchSrbOnHsdpa, CtrlHsdpaMcInactCtrl .
- Tuning parameter standAloneSrbSelector.

WHAT WAS DONE

WHAT WAS DONE ON WEEK 48:

3G :

- Add NB adjacencies 3G-3G done to improve HOSR and DCR due to HO on 4 regions .
- Deactivate feature CtrlFDpchSrbOnHsdpa, CtrlHsdpaMcInactCtrl for Monastir and Mahdia
- Tuning parameter ReleaseRedirectEutraTriggers for Monastir, Sousse Mahdia.
- Uerc adjustment in accordance with E// recommendations.
- Tuning Call Reestablishment to be aligned with recommended value for MOKEVO1 RNC.
- Optimize Irat parameter, Isho parameter, Shoft Handover Parameter to improve Mobility(continuing, cell level).
- Optimize Idle Parameter/Selection Re-selection to improve Accessibility CS and PS.

2G:

- 2G Codec Tunning in Sousse, Monastir, Kairouan. (BSC level)
- GPRS DL Power Control algorithm) based on worst performing analysis.
- Tunning BCCH, BSIC and DCHNO for several cells in Sousse, Monastir and Kairouan to improve accessibility and retainability partially done,
- Optimize Idle Parameter/Selection Re-selection to improve Accessibility CS and PS.

4G:

- Activating Multiple Frequency Band Indicators, Prioritized SR Scheduling and Downlink Coordinated Multi-Point on the sites in all regions (CR raised)
- Tuning parameters a5Threshold2Rsrq and a5Threshold2Rsrq for improving Lte mobility on the worst cells.

WHAT WAS DONE

WHAT WAS DONE ON WEEK 49:

3G :

- Add 3G-3G missing NB Relation in SOURNC1, MOKEVO1.
- Corrected 2G and 3G External Cell in 2G, Tuning parameter related IRAT.
- Tuning IRAT parameter (threshold 2d, priorityrelation)
- Tuning SF_Adm in KRNRNC1.
- Tuning UeRC parameter, releaseRedirectEutraTriggers in Sousse, Monastir, Mahdia and Kairouan.
- Tuning CPICH Power in Sousse, Monastir and Mahdia.
- Tuning Parameter Utrancell in Sousse, Monastir, Mahdia and Kairouan.
- Tuning Parameter dlcodepowercmenabled in Worst Cell List Sousse.

2G:

- Add 2G missing NB to 3G And 2G-2G missing NB in Monastir, Sousse, Mahdia.
- Implement 2G Features Advance UL Power Control in Kairouan and Sousse
- Tuning 2G and 3G RET in Monastir, Mahdia.
- Tuning 2G Idle Mode Parameter for Worst Cell list.
- Activated feature ReducedPowerLevelAfterHandover in Sousse.

4G:

- Activating features Prioritized SR Scheduling, Downlink Coordinated Multi-Point, Dynamic Uplink Resource Allocation, Dynamic Pucch on the sites in all regions
- Tuning parameters a5Threshold2Rsrq, cellIndividualOffsetEUtran, isHoAllowed for improving Mobility on the worst cells
- Changing parameters electricalantennaTilt, configuredMaxTxPower for improving DCR on the worst cells.

WHAT WAS DONE

WHAT WAS DONE ON WEEK 50:

2G:

- Tuning DCHNO parameter in Monastir.
- Implement 2G Features Advance UL Power Control in Mahdia.
- Trial Feature GPRS/EGPRS DL Power Control in Mahdia.
- Trial Feature Efficiency Packet Data & Expanded_PDCH_address_space in Kairouan..
- Tuning ChannelGroup parameter related GPRS in SOUSSE.

3G:

- Add 3G-2G missing NB Relation in SOURNC1, MOKEVO1, KRNRNC1, SOUEVO1.
- Tuning IRAT parameter (threshold 2d, priorityrelation, hotype).
- Tuning Parameter Utrancell in Sousse.
- Tuning RET and parameter in SOUEVO1 and MOKEVO1.
- Delete 3G-2G un-necessary relation in Monastir.

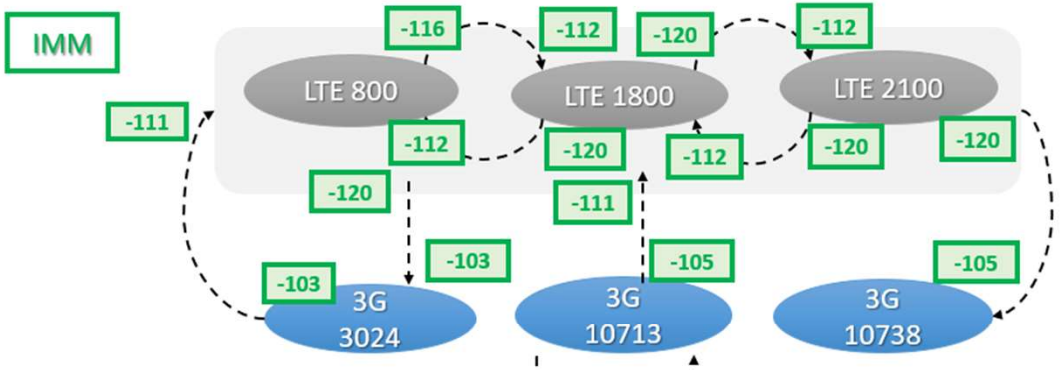
4G:

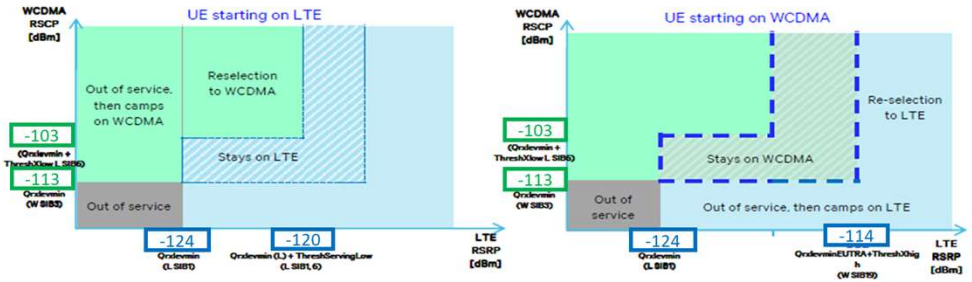
- Alignment features ThreeDlCarrierAggregation, Prioritized SR Scheduling, Dynamic Uplink Resource Allocation, Dynamic Pucch, AnrFunction on the sites in all regions
- Alignment parameters isHoAllowed, isRemoveAllowed, loadBalancing, sCellCandidate on EUtranCellRelations
- Added missing frequency on EUtranFreqRelation
- Audit EUtranCellFDD parameters

WHAT WAS DONE
Testing New Idle Mobility Strategy in the Test Cluster

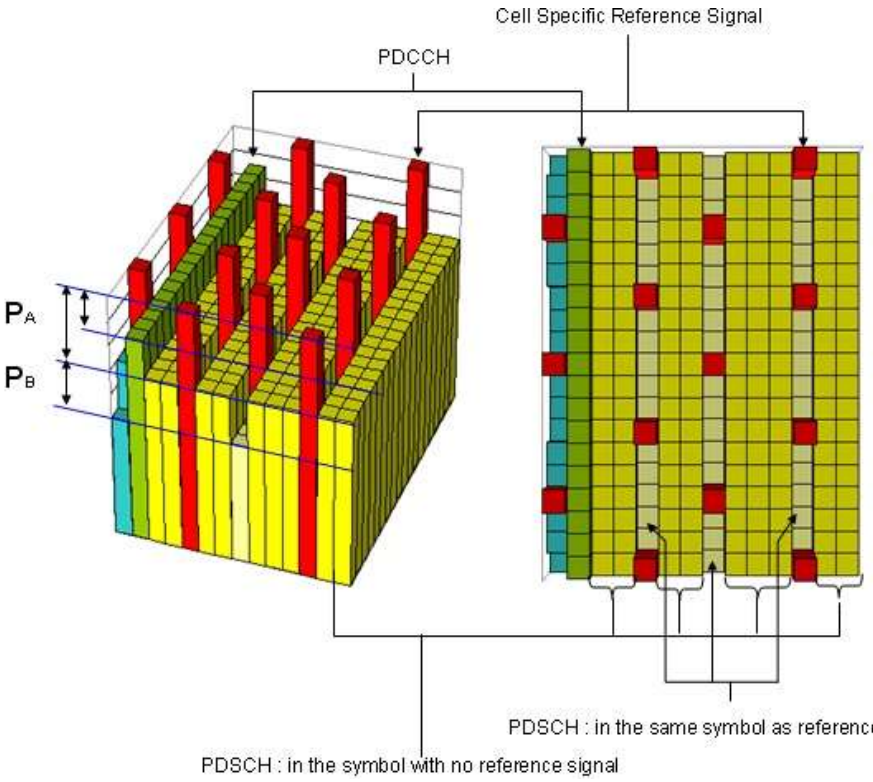
CR 4G_039, 20231102_CR_4G_IdleMM_Test_zone_Kairouan - changing 4G <-> 4G parameters, implemented on 11/02/2023.
CR 4G_046, 20231106_CR_4G_IdleMM_Test_zone_part2_Kairouan – changing 4G -> 3G parameters, implemented on 11/07/2023.
CR 4G_051, 20231110_CR_4G_configuredMaxTxPower_Test_zone_Kairouan – aligning LTE RS RE Power to BaseLine value, implemented on 11/13/2023.
CR 4G_054, 20231115_CR_4G_configuredMaxTxPower_Test_zone_part2_Kairouan – aligning LTE RS RE Power in Urban/suburban sites between different bands, implemented on 11/20/2023.

Target / Source	Parameters	L2100 251	L1800 1350	L800 6200	U2100 F2 10738	U2100 F1 10713	U900 3024
L2100 L1800 L800	qRxLevMin	-124dBm	-124dBm	-124dBm	-113dBm	-113dBm	-113dBm
	qQualMin	0dB	0dB	0dB	-18dB	-18dB	-18dB
	threshXHigh	4dB -> 14dB	4dB -> 14dB	4dB -> 12dB	10dB -> 8dB	10dB -> 8dB	10dB
	threshXLow	0dB -> 12dB	0dB -> 12dB	0dB -> 12dB	10dB -> 12dB	10dB -> 12dB	10dB
	qRxLevMin	-124 dBm					
	qQualMin	0 dBm					
	threshServingLow	14 dB -> 4 dB (L2100,L1800), 14 dB -> 8 dB (L800)					
	cellReselectionPriority	7|6 -> 7	7	6	3 -> 4	4	5
	connectedModeMobilityPrio	6 -> 7	7|6 -> 7	7 -> 6	-1 -> 4	4	5
	csFallbackPrio	-	-	-	-1 -> 4	4	5
	csFallbackPrioEc	-	-	-	-1 -> 4	-1 -> 4	5
	altCsfbTargetPrio	-	-	-	0	0	0
	altCsfbTargetPrioEc	-	-	-	0	0	0
	sIntraSearch	1000|62 dB -> 62 dB					
	sNonIntraSearch	8 dB -> 10 dB					
	qHyst	4	4	4	-	-	-
	tReselectionEutra(Utra,Geran)	2	2	2	2	2	2





COMMENTS & RECOMMENDATION
4G LTE RS RE Power



Current value LTE RS RE Power on the Network

EARFCN/Bandwidth	MIMO	configuredMaxTxPower	Power per Port, W	LTE RS RE Power, dBm
6200 (10MHz)	2X2	60000	30	19.9897
		80000	40	21.2391
		100000	50	22.2082
251 (10MHz)	2X2	40000	20	18.2288
1350 (20MHz)	2X2	120000	60	19.9897
		140000	70	20.6592
		160000	80	21.2391
251 (10MHz)	4X4	80000	20	18.2288
		120000	30	19.9897
		160000	40	21.2391
1350 (20MHz)	4X4	160000	40	18.2288
		180000	45	18.7403

Better has the similar LTE RS RE Power on cells

EARFCN/Bandwidth	MIMO	configuredMaxTxPower	Power per Port, W	LTE RS RE Power, dBm
6200 (10MHz)	2X2	40000	20	18.2288
		60000	30	19.9897
251 (10MHz)	2X2	40000	20	18.2288
1350 (20MHz)	2X2	80000	40	18.2288
		120000	60	19.9897
251 (10MHz)	4X4	80000	20	18.2288
1350 (20MHz)	4X4	160000	40	18.2288

For example the same LTE RS RE Power for cells in Urban/suburban, and Rural areas

CONTRACTUAL KPIS

2G

Region	Week\KPI [Target]	CSSR(%) [99.2]	TbfDlEstSR(%) [98.5]	TbfUlEstSR(%) [99.9]	TchDR(%) [0.6]	TbfDlDropR(%) [0.9]	TbfUlDropR(%) [0.11]	HOSR(%) [99.2]	WclRatio(%)
Sousse	50	99.15	98.29	99.99	0.78	1.20	0.19	99.10	78.67
Monastir	50	99.47	98.56	99.98	0.47	0.94	0.11	99.43	68.42

3G

Region	Week\KPI [Target]	CsCSSR(%) [99.9]	PsCSSR(%) [98.5]	RrcSR(%) [99.5]	CsDCR(%) [0.19]	PsDCR(%) [0.8]	IratHoCsSR(%) [98]	IratCcPsSR(%) [40]	CsHoSR(%) [99.9]	IfHoCsSR(%) [99.6]	IfHoPsSR(%) [99]	WclRatio(%)
Monastir	50	99.88	98.35	99.53	0.14	0.77	95.48	100.00	99.96	99.64	99.71	74.20
Sousse	50	99.93	98.62	99.78	0.16	0.87	92.70	100.00	99.95	99.20	100.00	75.89

4G

Region	Week\KPI [Target]	RrcSR(%) [99.99]	ErabSR(%) [99.95]	SSSR(%) [99.94]	ErabDCR(%) [0.08]	Mobility_SR(%) [99]	WclRatio(%)
Sousse	50	99.97	99.91	99.87	0.10	98.01	49.56
Monastir	50	99.96	99.90	99.86	0.10	98.17	47.18

Major bottlenecks :

- 2G Availability issue impacting many sites in different dates during week from different regions is mainly contributing in bad 2G KPI performance of region. (check attached excel file for cell with avail problem)

2G
ail_Cells_Sousse_M

- High LTE UL RSSI in L800 affecting 4G KPI performance in Sousse and Monastir (check attached email)

UL RSSI on L800 cells near the Ksibet Messadine Erriadh Msaken Ezzouhour Zaouiet Moured

RE High UL RSSI on L800 Monastir Region .msg

KPIs PROGRESS IMPROVEMENT

2G

Area	Week\KPI [Target]	CSSR(%) [99.2]	TbfDlEstSR(%) [98.5]	TbfUlEstSR(%) [99.9]	TchDR(%) [0.6]	TbfDlDropR(%) [0.9]	TbfUlDropR(%) [0.11]	HOSR(%) [99.2]	WclRatio(%)
Kairouan	50	98.30 ▲	94.42 ▬	99.10 ▬	1.46 ▬	3.59 ▬	0.92 ▬	97.63 ▲	92.86 ▲
Mahdia	50	98.97 ▬	96.98 ▬	99.87 ▲	0.97 ▬	1.95 ▬	0.45 ▬	98.20 ▲	80.73 ▬

3G

Area	Week\KPI [Target]	CsCSSR(%) [99.9]	PsCSSR(%) [98.5]	RrcSR(%) [99.5]	CsDCR(%) [0.19]	PsDCR(%) [0.8]	IratHoCsSR(%) [98]	IratCcPsSR(%) [40]	CsHoSR(%) [99.9]	IfHoCsSR(%) [99.6]	IfHoPsSR(%) [99]	WclRatio(%)
Kairouan	50	99.82 ▲	96.92 ▬	99.67 ▲	0.36 ▲	2.30 ▲	95.95 ▬	100.00 ▲	99.71 ▲	98.10 ▬	99.42 ▲	92.38 ▲
Mahdia	50	99.91 ▲	97.33 ▬	99.35 ▲	0.18 ▲	1.39 ▲	95.66 ▬	86.73 ▲	99.86 ▲	99.15 ▬	93.99 ▬	80.28 ▲

4G

Area	Week\KPI [Target]	RrcSR(%) [99.99]	ErabSR(%) [99.95]	SSSR(%) [99.94]	ErabDCR(%) [0.08]	Mobility_SR(%) [99]	WclRatio(%)
Kairouan	50	99.96 ▲	99.84 ▬	99.80 ▲	0.18 ▲	96.98 ▲	63.59 ▲
Mahdia	50	99.97 ▲	99.86 ▬	99.82 ▬	0.13 ▲	97.84 ▲	53.76 ▲

Major bottlenecks :

- 2G Availability issue impacting many sites in different dates during week from different regions is mainly contributing in bad 2G KPI performance of regions. (check attached excel file for cell with avail problem)

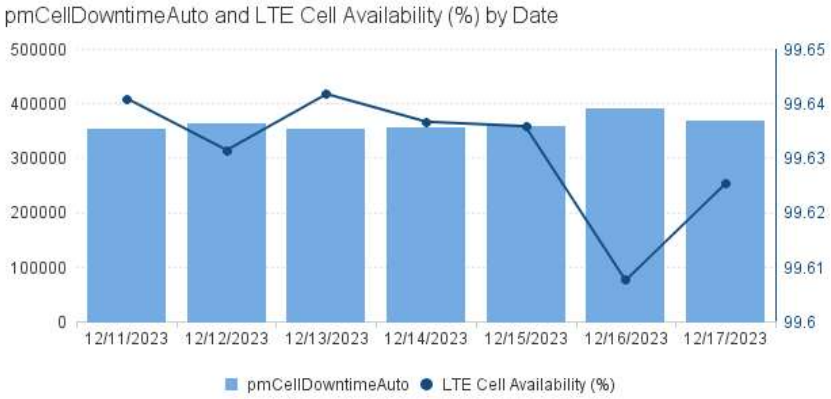
2G
\vail_Cells_Kai_Mal

- Limitation in transport bandwidth (observed by high Iub congestion) is impacting global KPI mainly in Mahdia region.

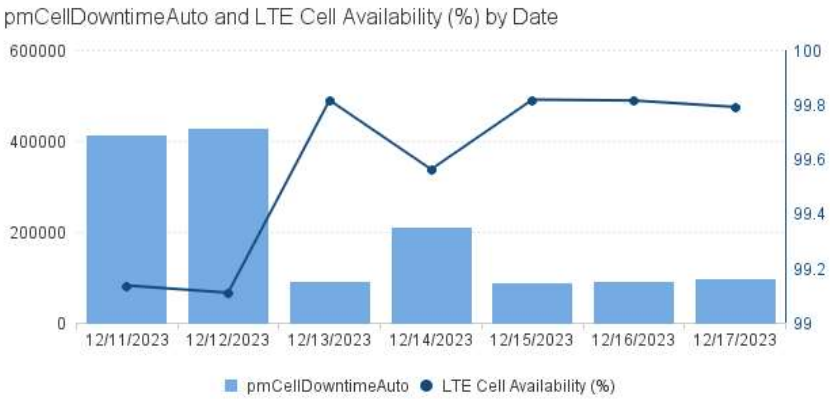
Iub
ongestion_Mah_Ka

LTE Cell Availability and HW/RET issue

Sousse

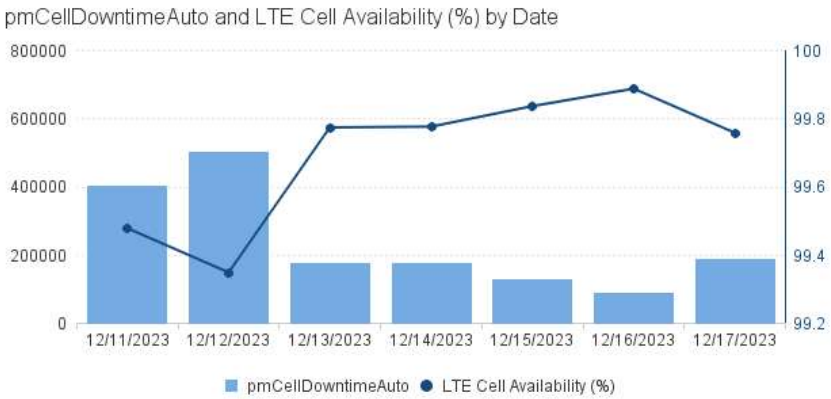


Mahdia

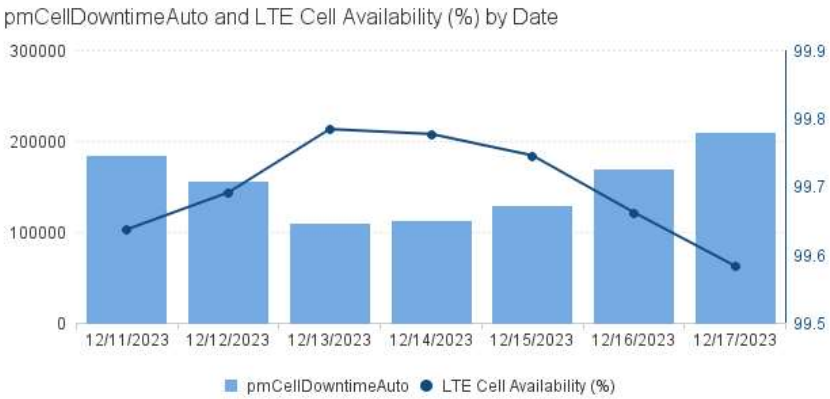


4G UL RSSI

Monastir



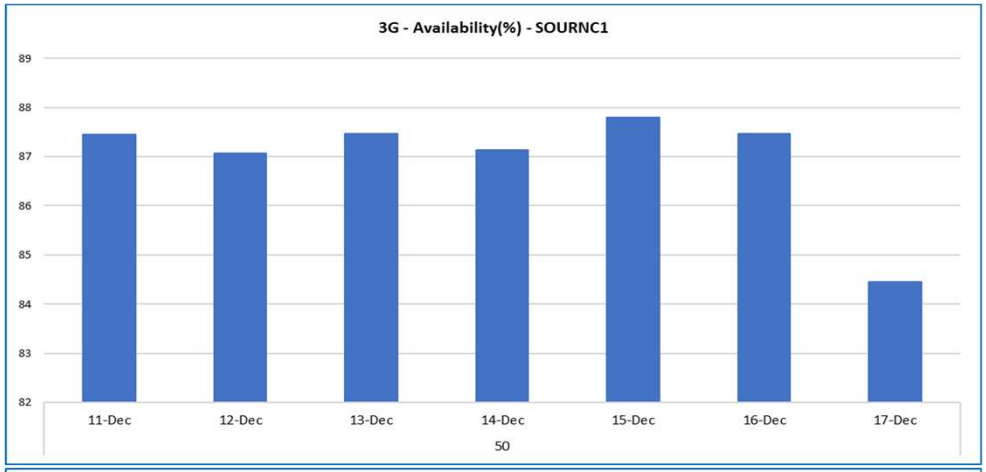
Kairouan

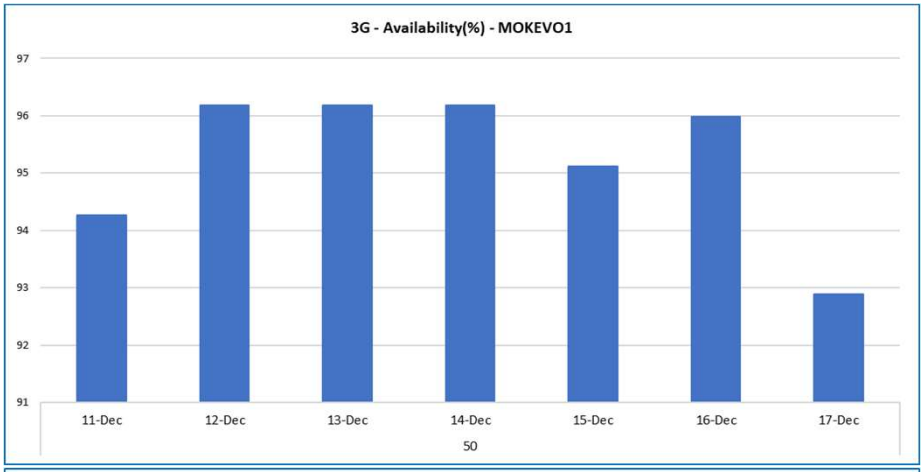


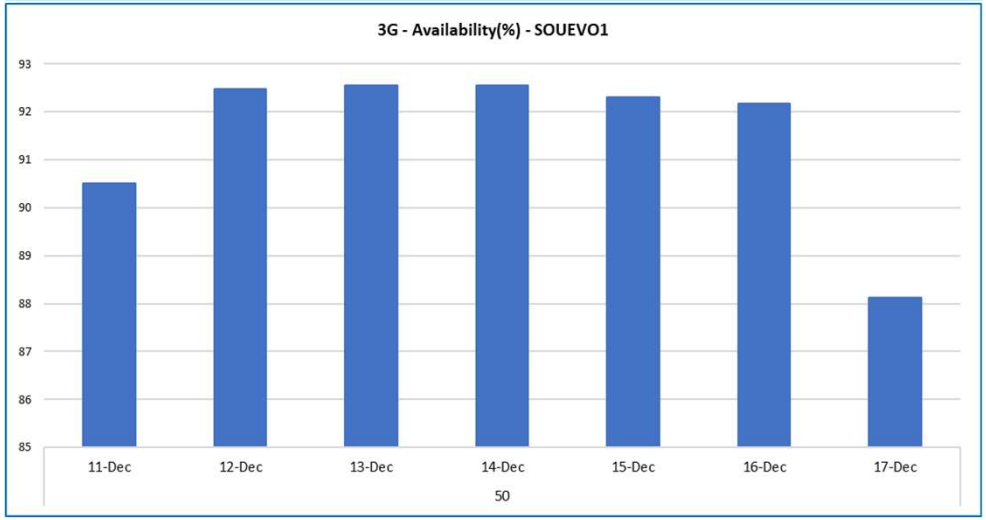
4G HW_RET issue

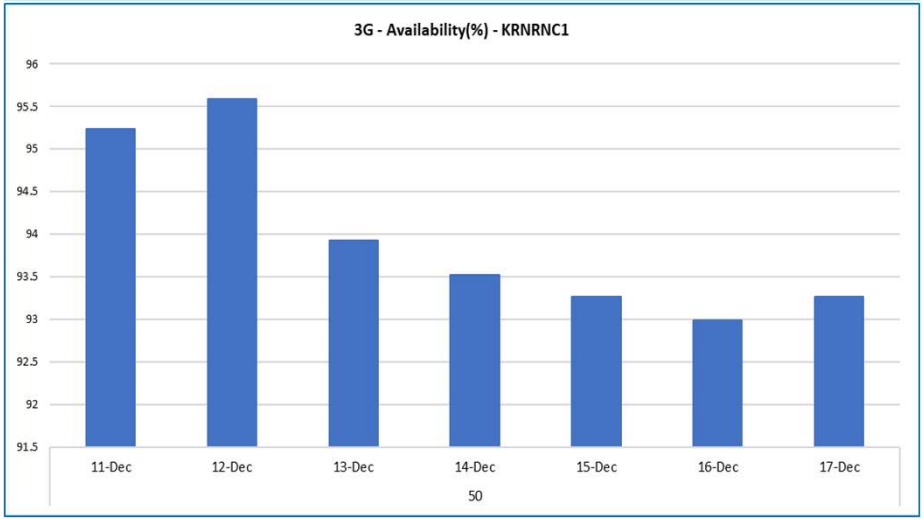
3G Cell Availability ,CellDownTime & alarm

Need to reduce Availability Issues to improve KPI



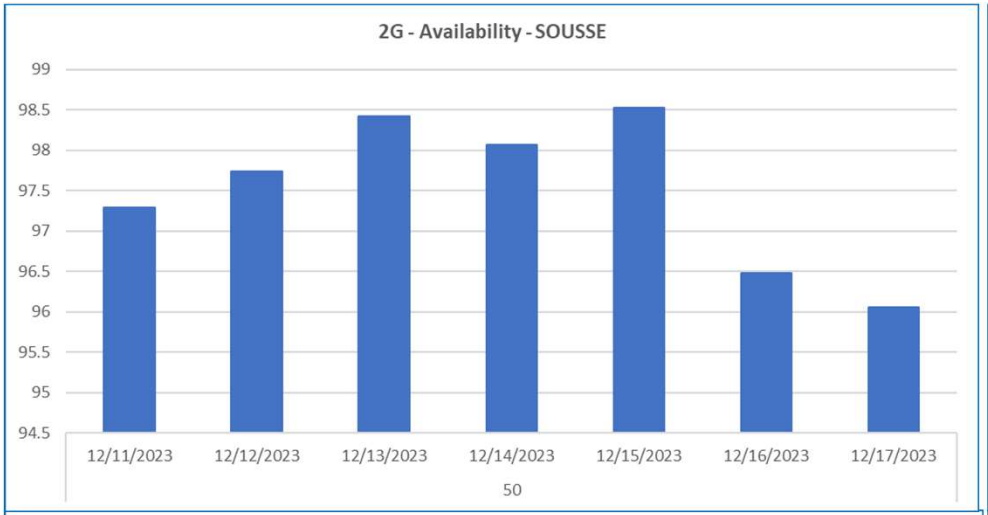


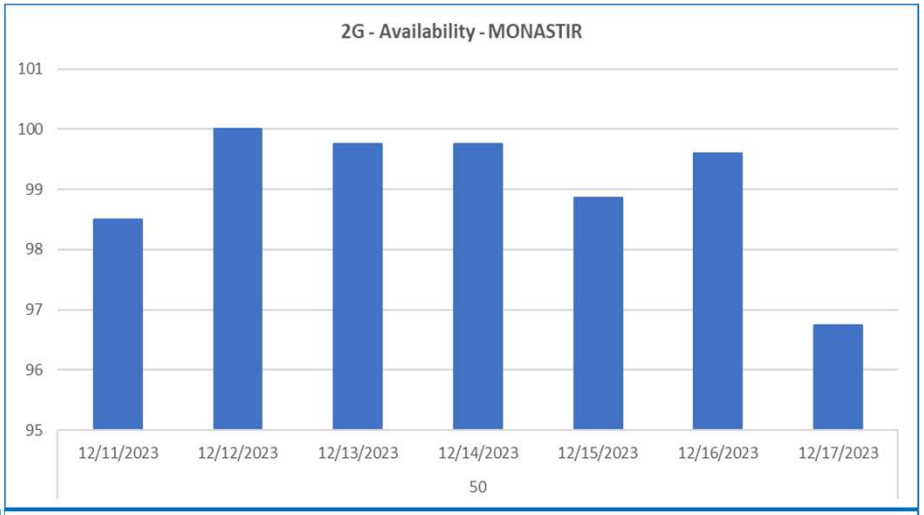


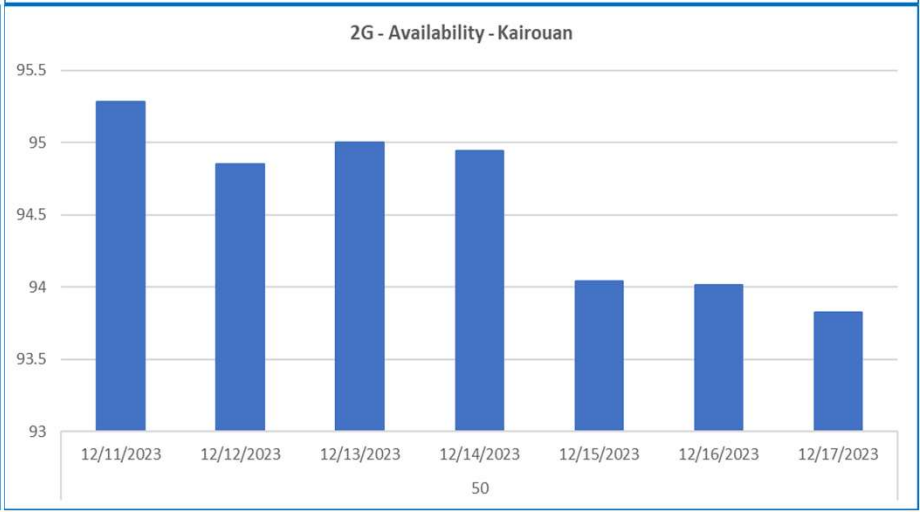


2G Cell Availability, CellDownTime & Alarm

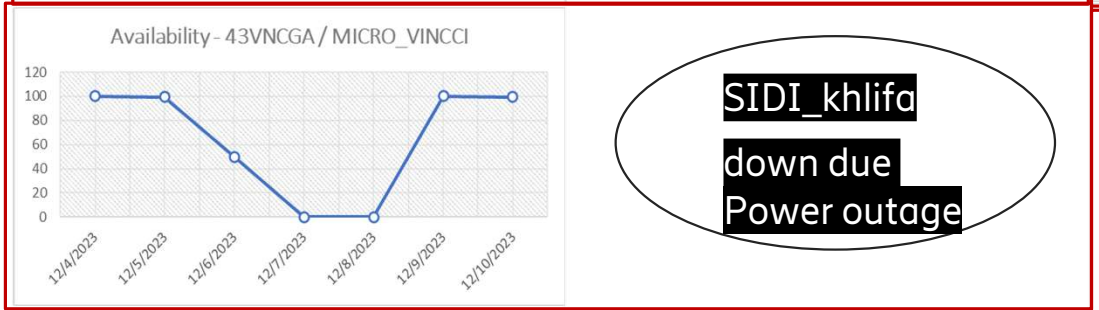
Need to reduce Availability Issue/Cell down time to improve KPI







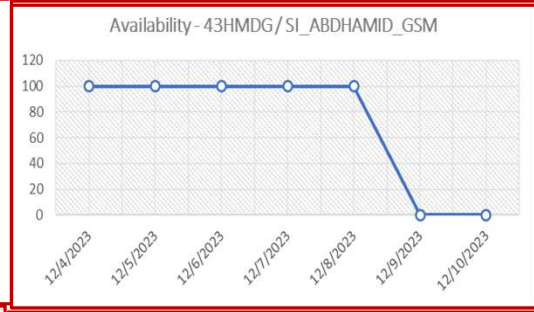
2G-4G_Availability in Sousse

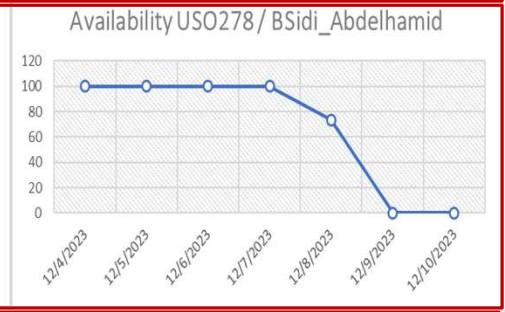


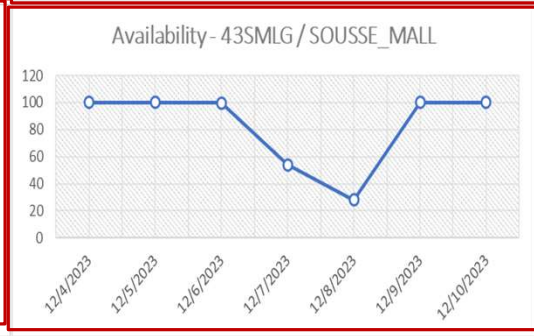
SIDI_khlifa

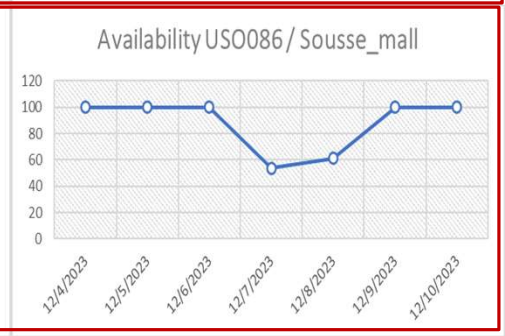
down due

Power outage





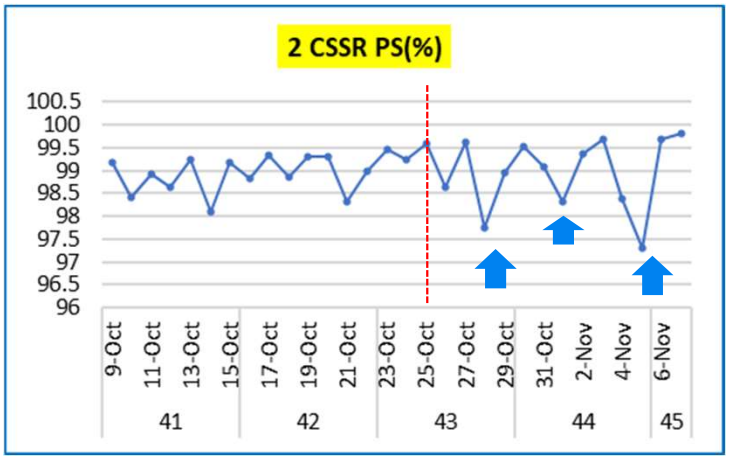


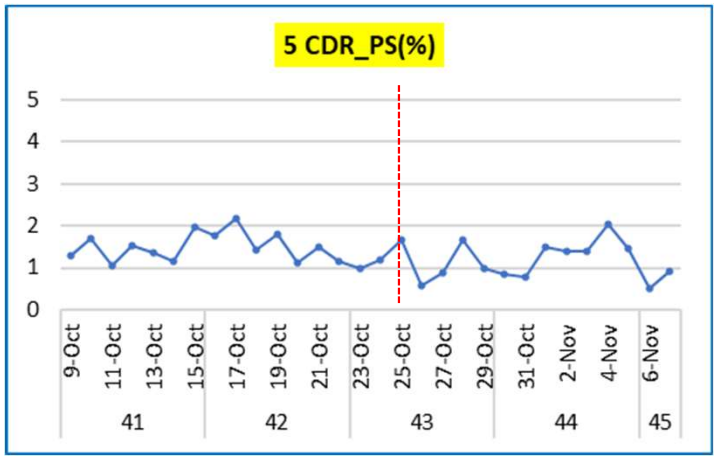


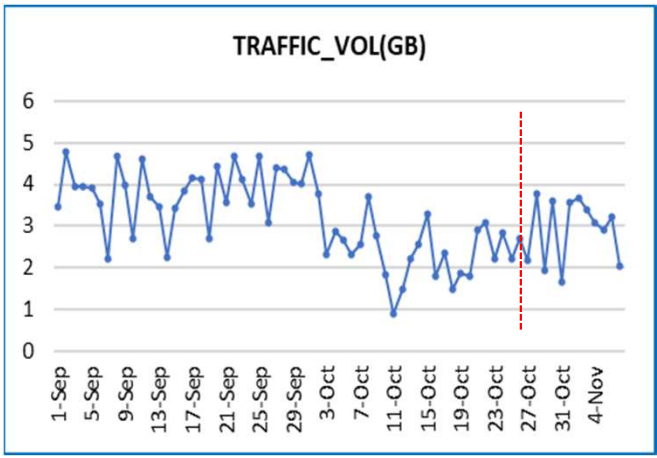
Sample Action Tilt and reduce CPICH Power :

RNC	Node	Sector_index	userLabel	Parameter	Curre	Require
SOURNC1	B4G3G_Sidi_Khlifa	USO193_S1	3G_Sidi_Khlifa_U2100_F2_1	electricalantennatilt	40	60
SOURNC1	B4G3G_Sidi_Khlifa	USO193_S2	3G_Sidi_Khlifa_U2100_F2_2	electricalantennatilt	40	60

RNC	MO	UtranCell	UtranCel	Parameter	Curre	Requi
SOURNC1	SubNetwork=ONRM_ROOT_MO,SubNetwork=WR	USO193_S1	USO193O	primaryCpichPower	358	330
SOURNC1	SubNetwork=ONRM_ROOT_MO,SubNetwork=WR	USO193_S2	USO193P	primaryCpichPower	358	330

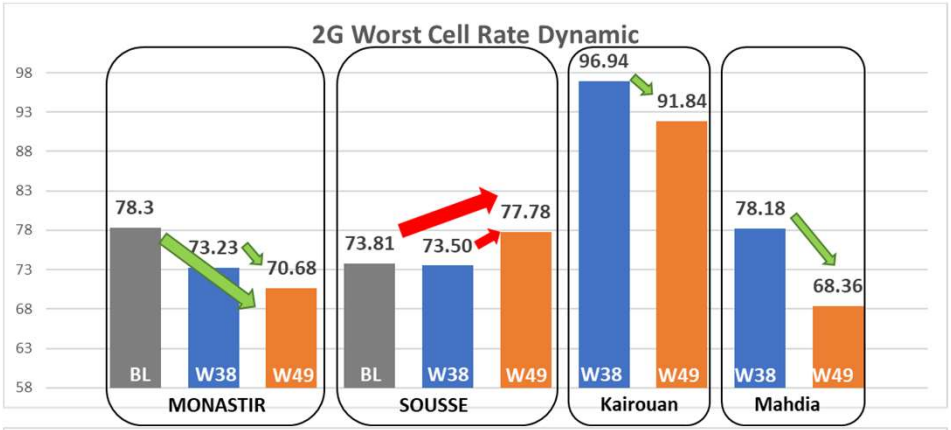


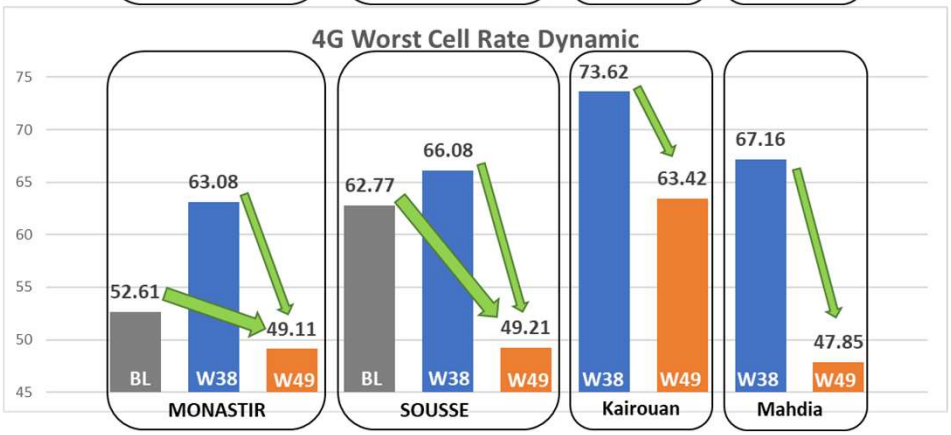


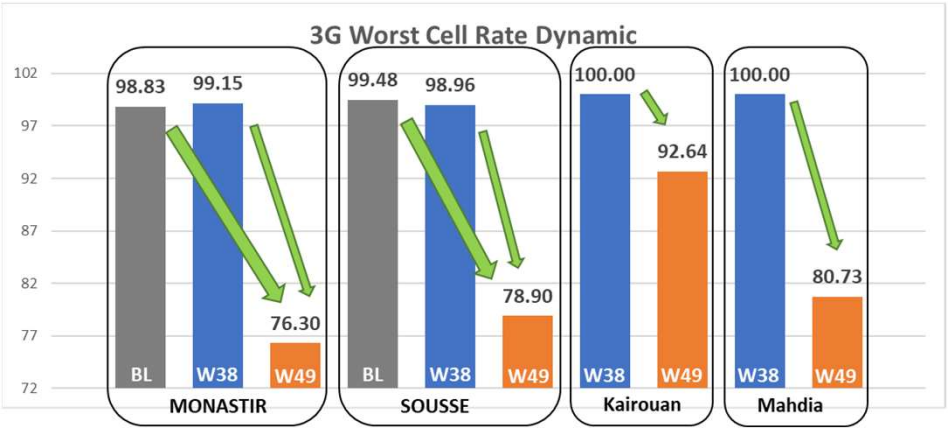


CR implemented on 25 October 2023, during monitoring KPI, KPI (CSSR, CDR, Traffic) showing spike on 28 Oct, 1 Nov and 5nov (not due to CR implementation), suspected due to transmission flicker. Site location on the rural area. Traffic not impact action Downtilting, traffic keep maintain or slightly increase.

PERFORAMCE ACTIONS
Worst Cell Rate KPI's Dynamic







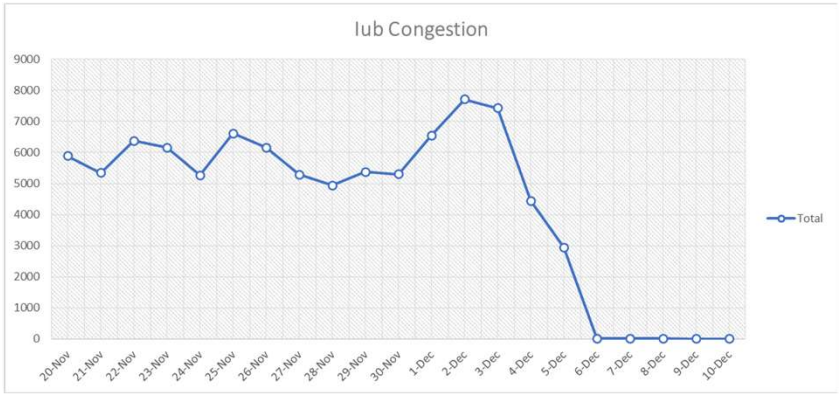
Improvement of the count of 2G WorstCells in the Monastir, Mahdia and Kairouan regions

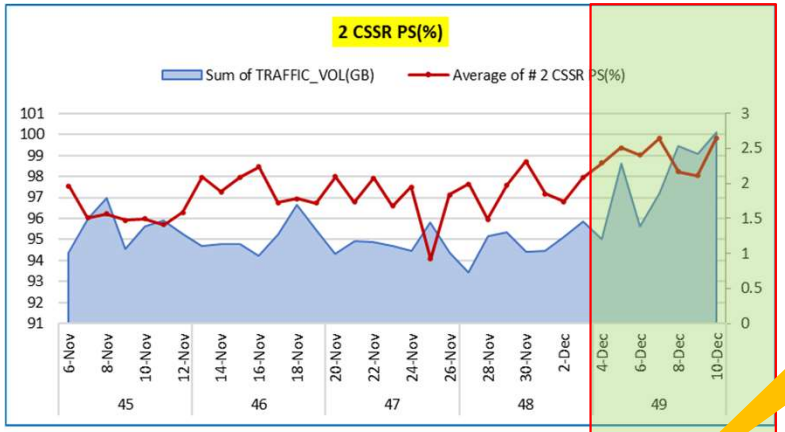
Improvement of the count of 3G WorstCells in all four regions

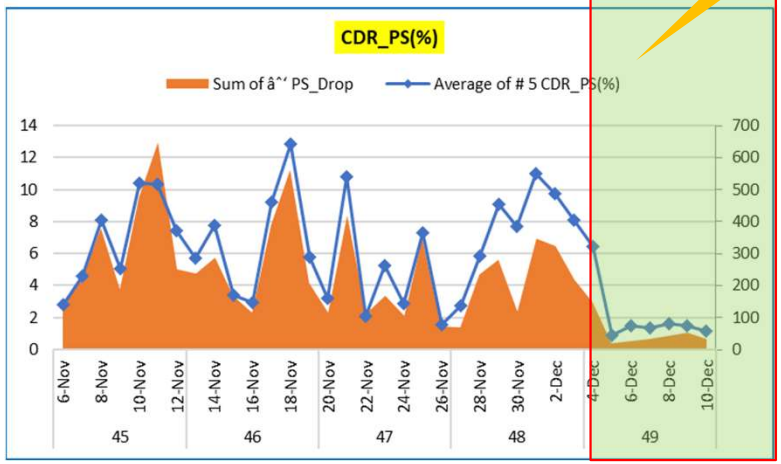
Improvement of the count of 4G WorstCells in all four regions

2G Availability in sousse affecting the improvement of Worst cells ratio

PERFORAMCE ACTIONS : IUB Upgraded in USO085 / 3G_Chgarnia



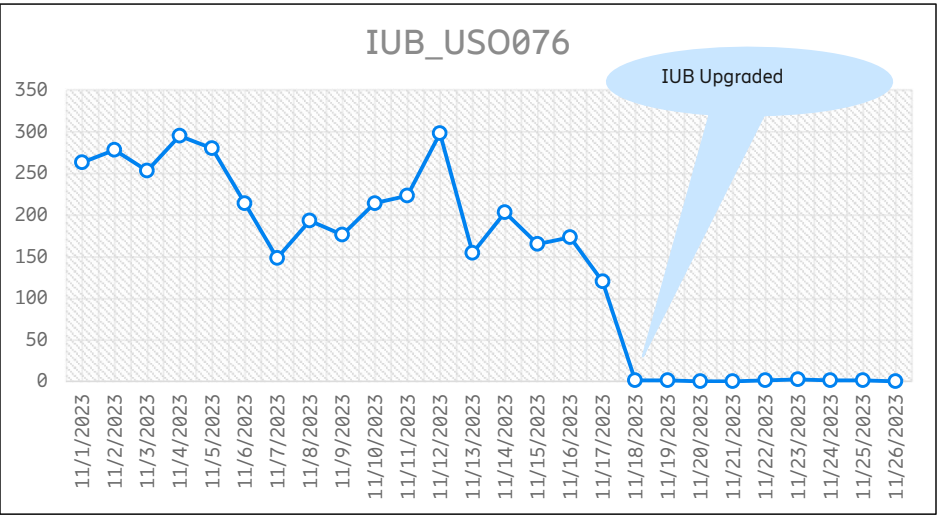


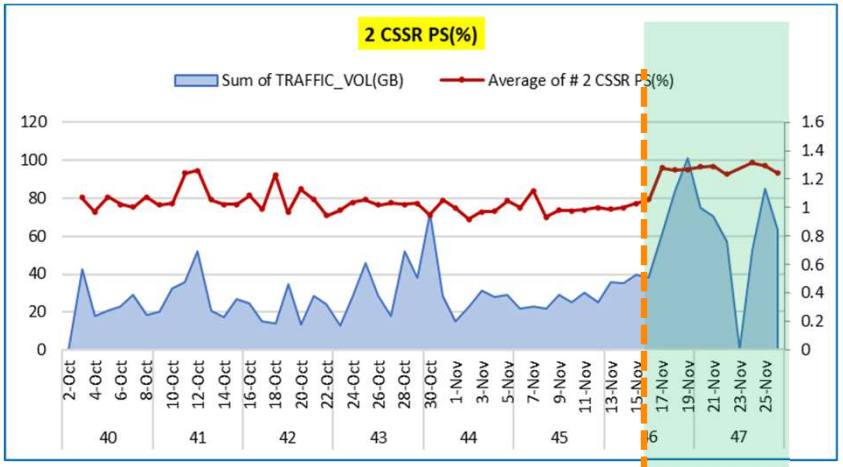


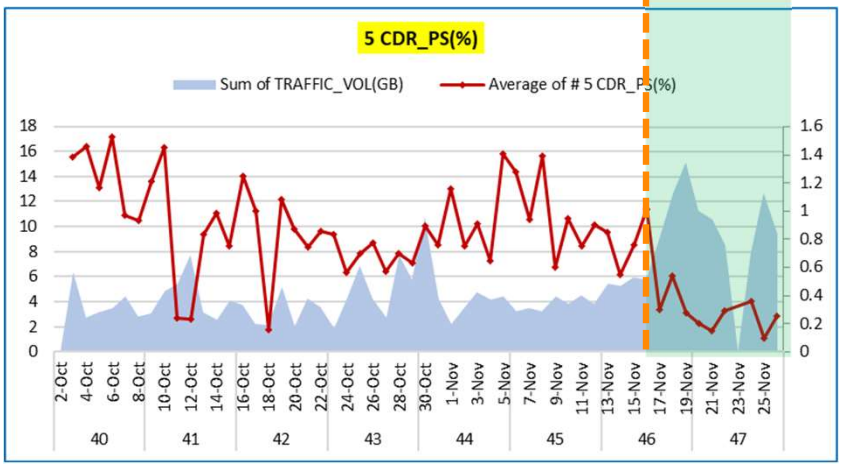
KPI improved after Upgraded Iub.

PERFORMANCE ACTIONS IUB Update on W47

- IUB Congestion Update : IUB USO076 already upgraded on 17 Nov 2023



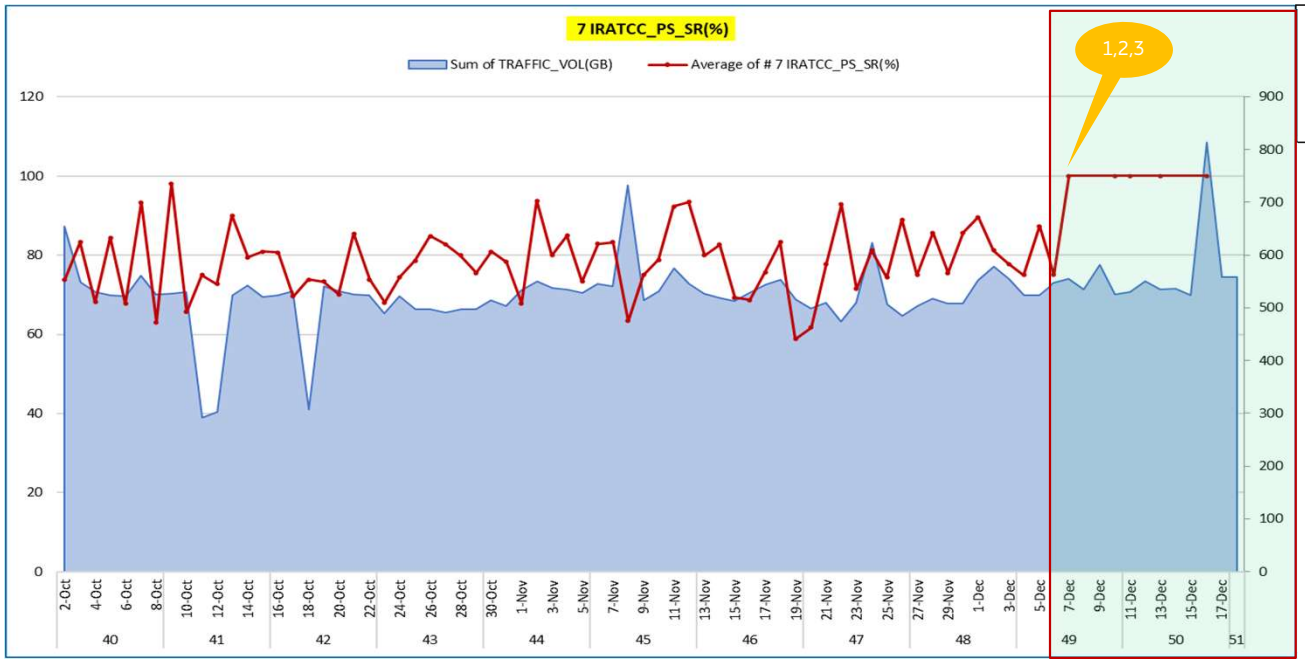




- Just after Iub upgrade, a good KPIs improvement taken place.

PERFORMANCE ACTIONS

3G KPI PERFORMANCE RNC KAIROUAN_IRAT_PS_SR



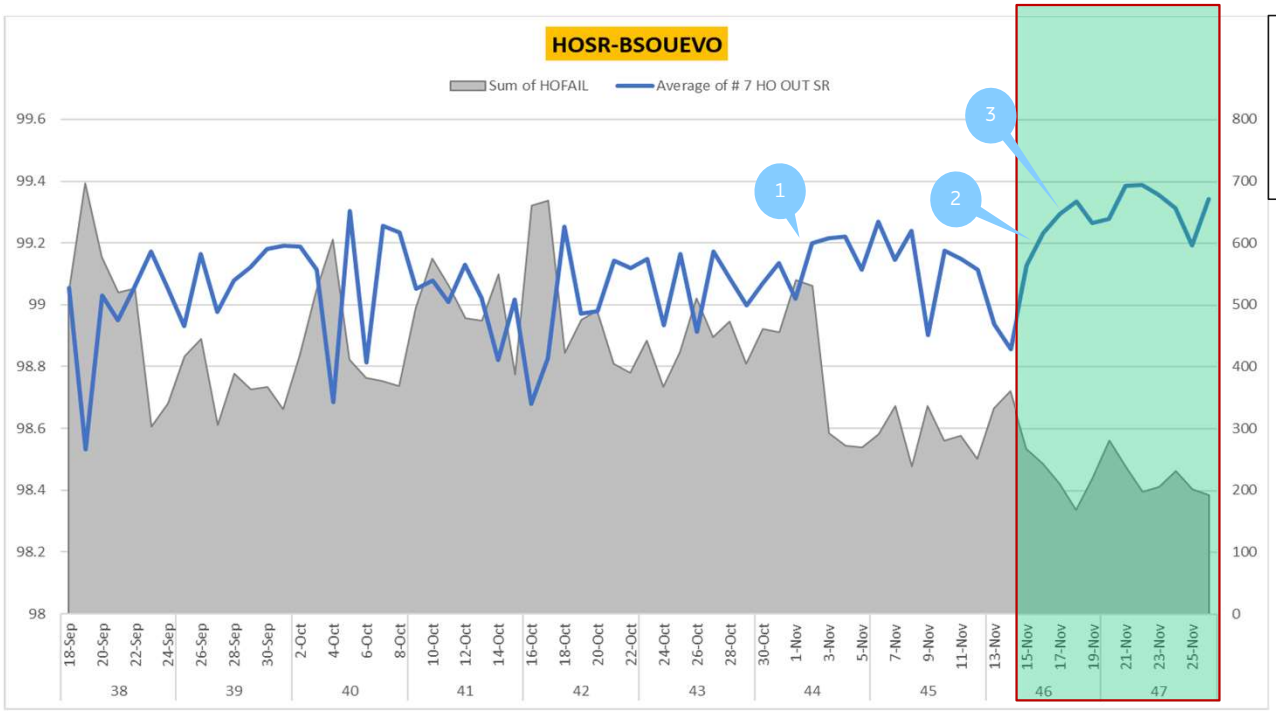
CR IMPLEMENTED :

1. 20231201_CR_3G_Kairouan_Ch_ifIratHoPsIntHsEnabled_Utrancell_WorstCellList. (7Dec).
2. 12072023_Uerc_UeRcTrCh_KRN_RNC_CR.(8Dec)
3. 12072023_releaseRedirectEutraTriggers_tuning_KRN. (8Dec)

IRAT_PS_SR improved after implement CRs.

PERFORMANCE ACTIONS

2G KPI PERFORMANCE BSC SOUSSE HOSR



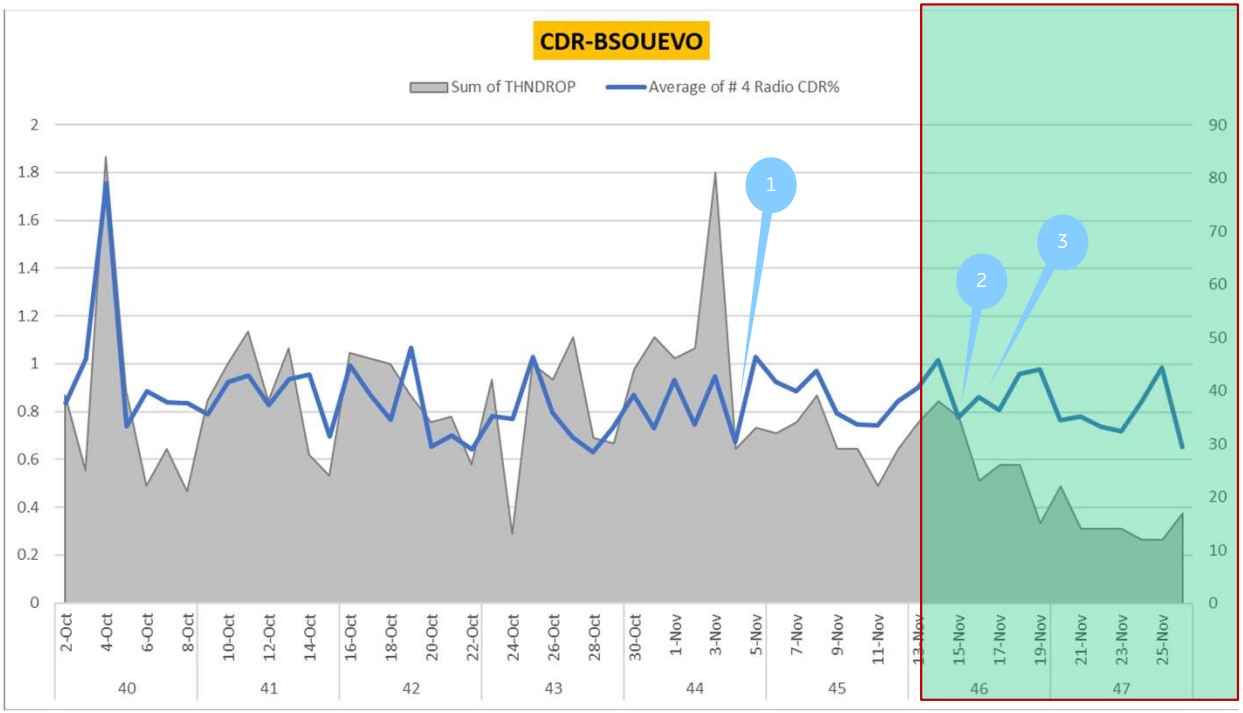
CR Implemented :

1. 220231031_CR_2G_Sousse_Add_del_NB_Relations_2G_2G_for_HOSR REV1 (2nov)
2. 20231114_CR_2G_PwrCtl_Uplink_changes_TWPC_Sousse(15Nov)
3. 20231114_CR_2G_Sousse_Add_del_NB_Relations_2G_2G V1(16nov)

CR already implemented on BSC SOUSSE (detail CR implementation on chart above), with result improvement on HOSR. Activity done, have added Relation and Delete unnecessary relation, then tuning BSRXmin and MsRxmin to improve HOSR as above chart . On 19, degraded due to 1 site problem (2G Knais)

PERFORMANCE ACTIONS

2G KPI PERFORMANCE BSC SOUSSE DCR



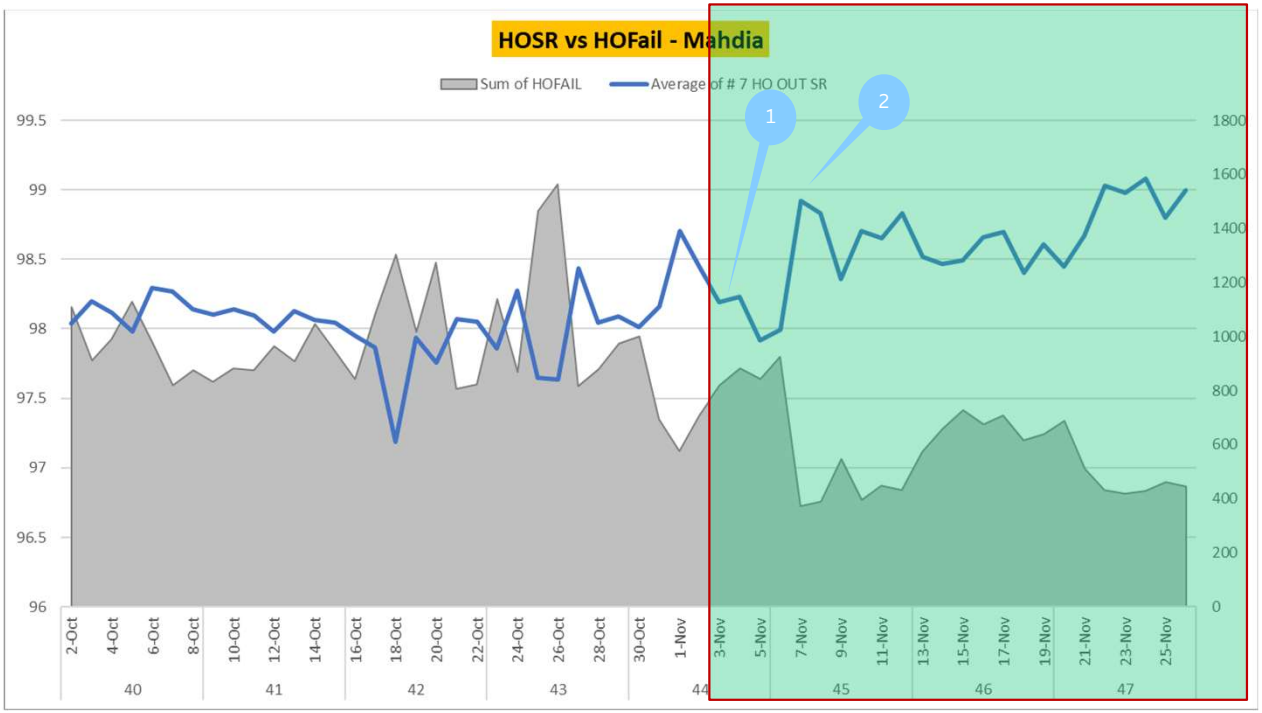
CR Implemented :

1.220231031_CR_2G_Sousse_Add_del_NB_Relations_2G_2G_for_HOSR REV1 (2nov)
2. 20231114_CR_2G_PwrCtl_Uplink_changes_TWPC_Sousse(15Nov)
3. 20231114_CR_2G_Sousse_Add_del_NB_Relations_2G_2G V1(16nov)

CR already implemented on BSC SOUSSE (detail CR implementation on chart above), Showing Reducing number of drop and reducing DCR (%). Drop call from HO reduced after increasing Bsrxmin and Msrxmin then continuing deletion un-necessary NB Relation.

PERFORMANCE ACTIONS

2G KPI PERFORMANCE HOSR _Mahdia



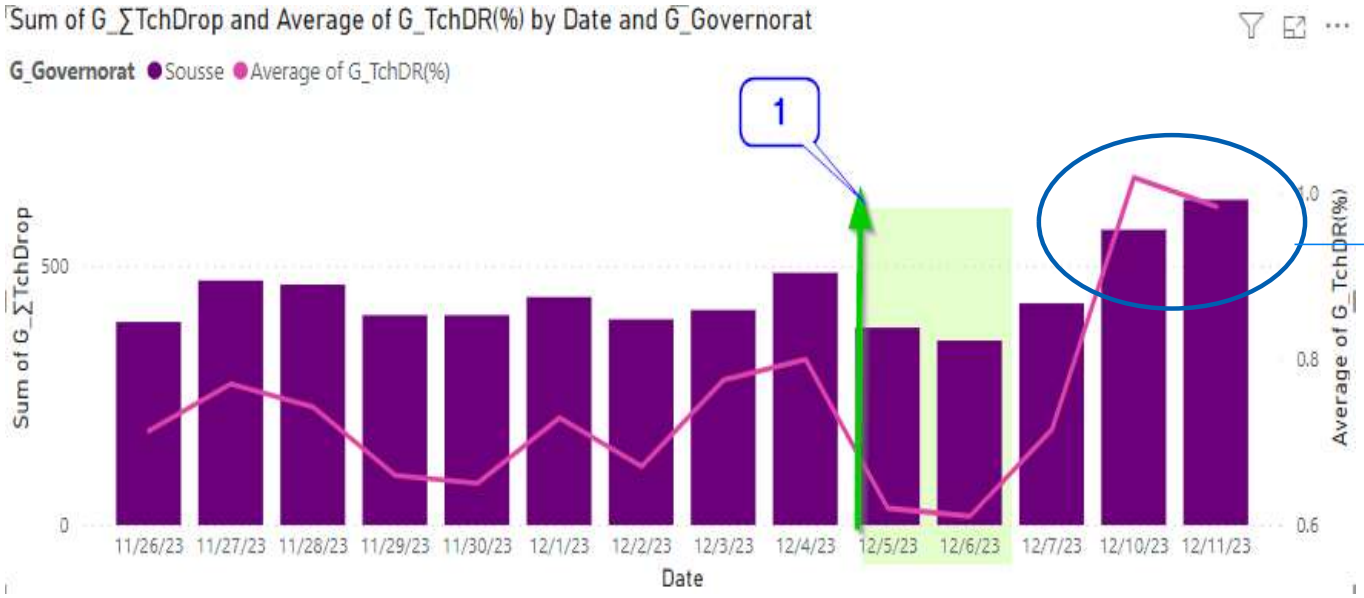
CR Implemented :

1. 20231102_CR_2G_BCCH_collisions_retune_Monastir_Mahdia(3nov)
2. 20231106_CR_2G_Neighbour_relation_addition_deletion_Monastir_Mahdia(7Nov)

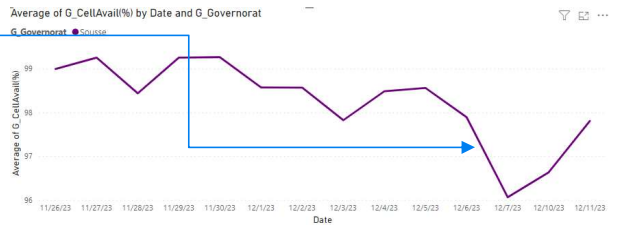
Above chart showing improvement in Mahdia Region after first step tuning BCCH in Mahdia, then continuing addition and deletion NB Relation improving HOSR.

PERFORMANCE ACTIONS

2G KPI PERFORMANCE SOUSSE REGION : TCH DROP(%)



1:ReducedPowerLevelAfterHandover feature_Activation_Sousse

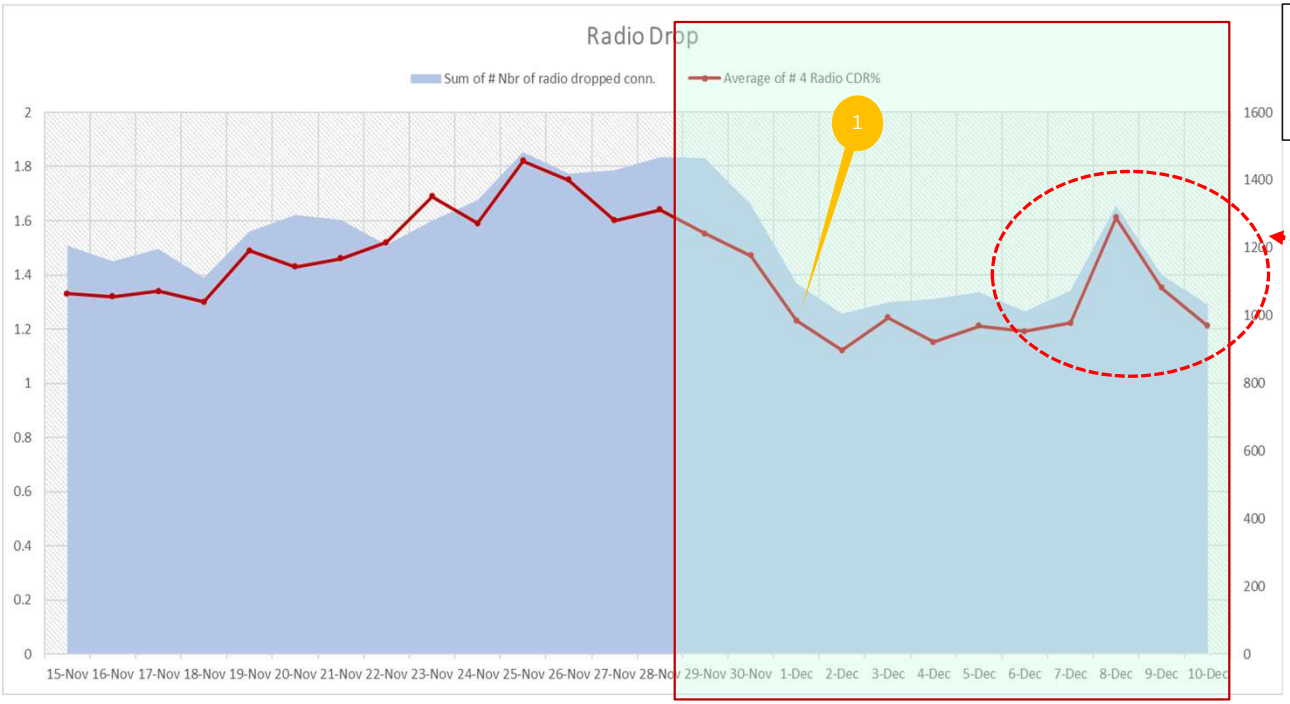


Above TCH DCR trend is showing great improvement in Sousse just after **"Reduced Power Level After Handover"** feature Activation, degradation seen after was caused by availability fluctuation issue as seen on small chart on the right side , on the date 8th and 9th : statistics are not available due to synch iss BSOUEVO and ENM.

Results : TCH DCR has improved by *24 %* from 0.80% to 0.61%, with #TCH Drop considerably reduced.

PERFORMANCE ACTIONS

2G KPI PERFORMANCE BSC Kairouan Radio Drop



CR Implemented :

1. 11302023_Codec_fine_Tuning (1Dec)

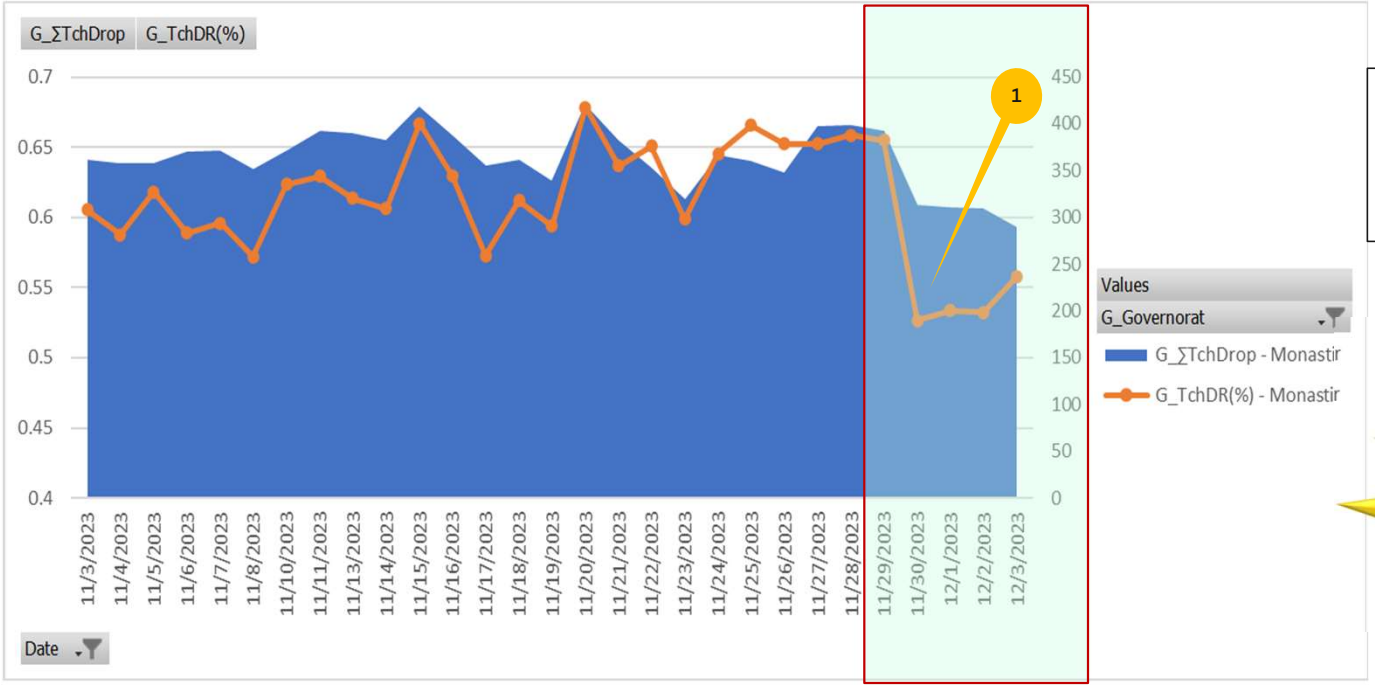
Radio Drop in 2G showing improvement in Kairouan after implement CR codec fine tuning. There are degradation on weekend (8-9 Dec) due to availability issue.

As the result : 2G_CDR has improved by 0.17% in avg from 1.47% to 1.22%

with #Radio Drop reduced 6% from 1095 to 1031.

PERFORMANCE ACTIONS

2G KPI PERFORMANCE MONASTIR REGION : TCH DROP(%)



CR Implemented :

1. AMR_Codec_fine_Tuning (30 Nov)

- 20% of improvement

Above TCH DCR trend is showing great improvement in Monastir after implement CR AMR codec fine tuning.

As the result : TCH DCR has improved by 20% from 0.75% to 0.62%

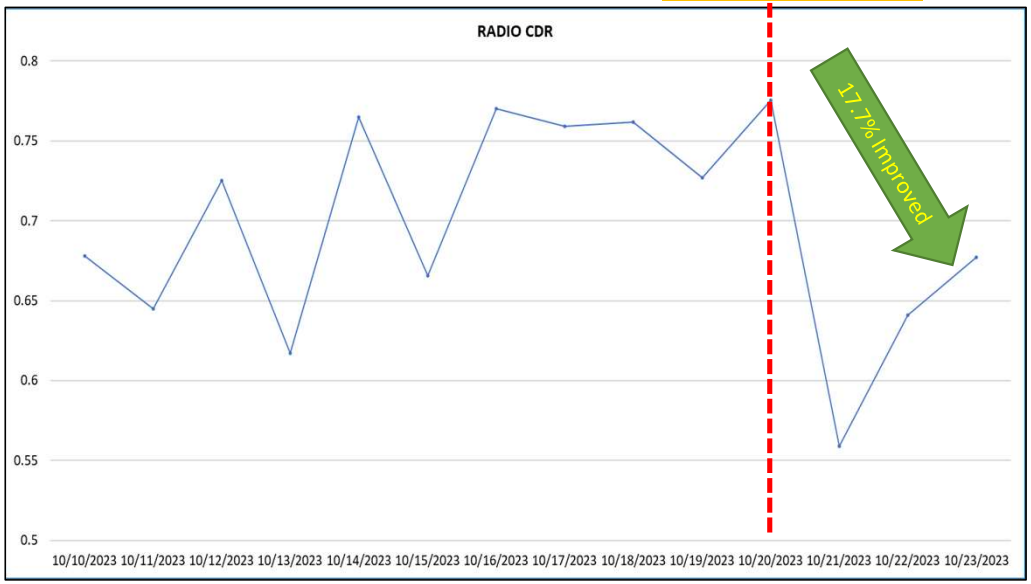
with #TCH Drop considerably reduced.

PERFORAMCE ACTIONS
Activate IRC in 325 cells

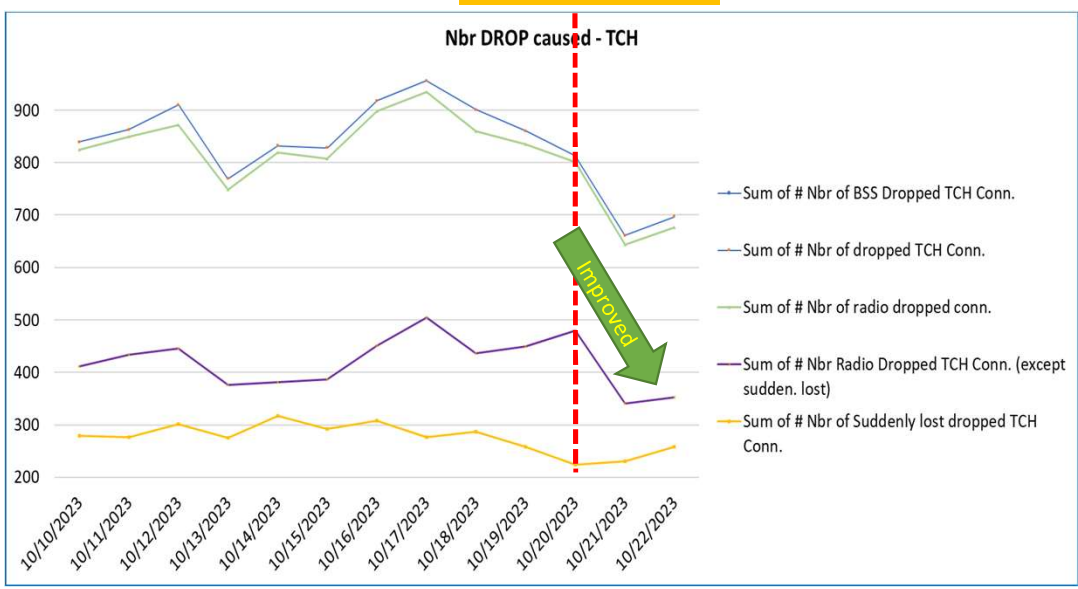
CR 2G_010 – 20231017_CR_2G_MONASTIR_Change_Parameter_Gerancell IRC (325 cells)

Activated IRC, is affected on quality of the Radio, it showing that drop call improved with reducing Number of drop due to Radio.

Implementation date

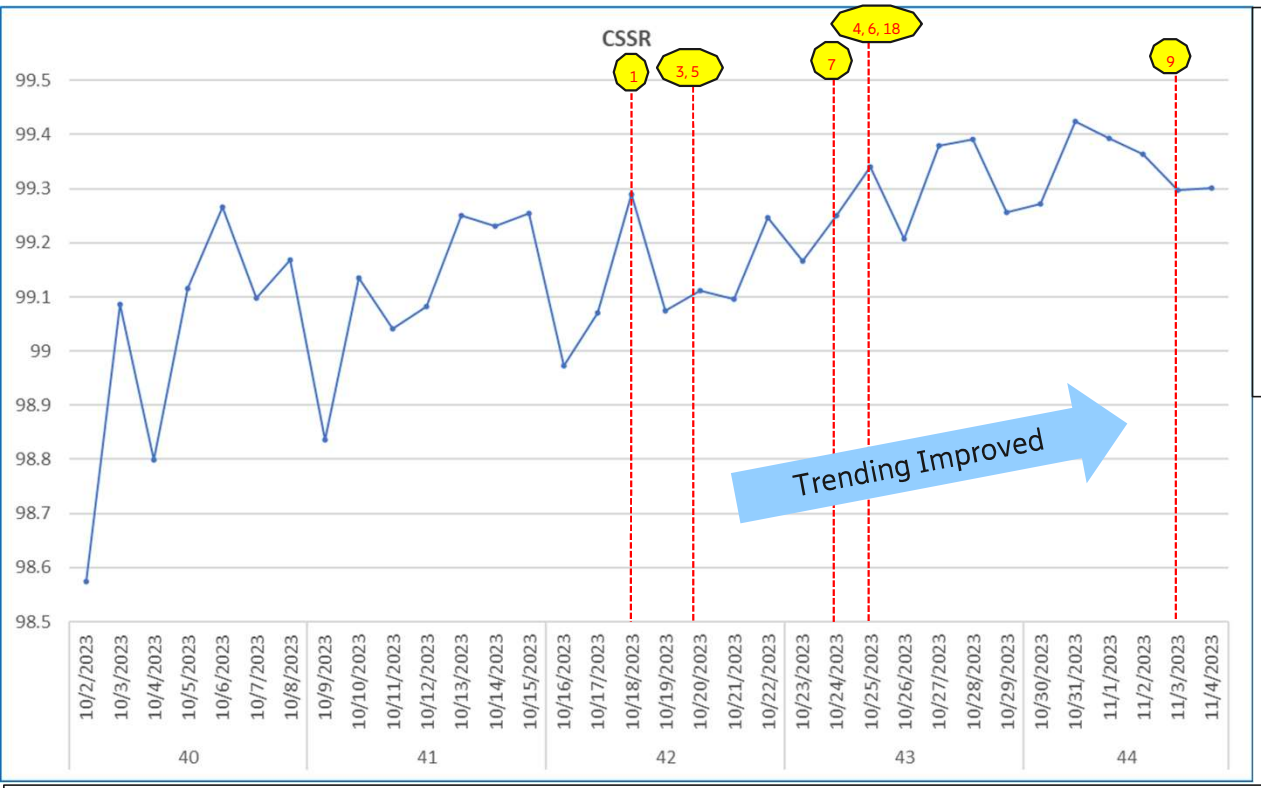


Implementation date



PERFORMANCE ACTIONS

2G KPI PERFORMANCE BSC SOUSSE CSSR



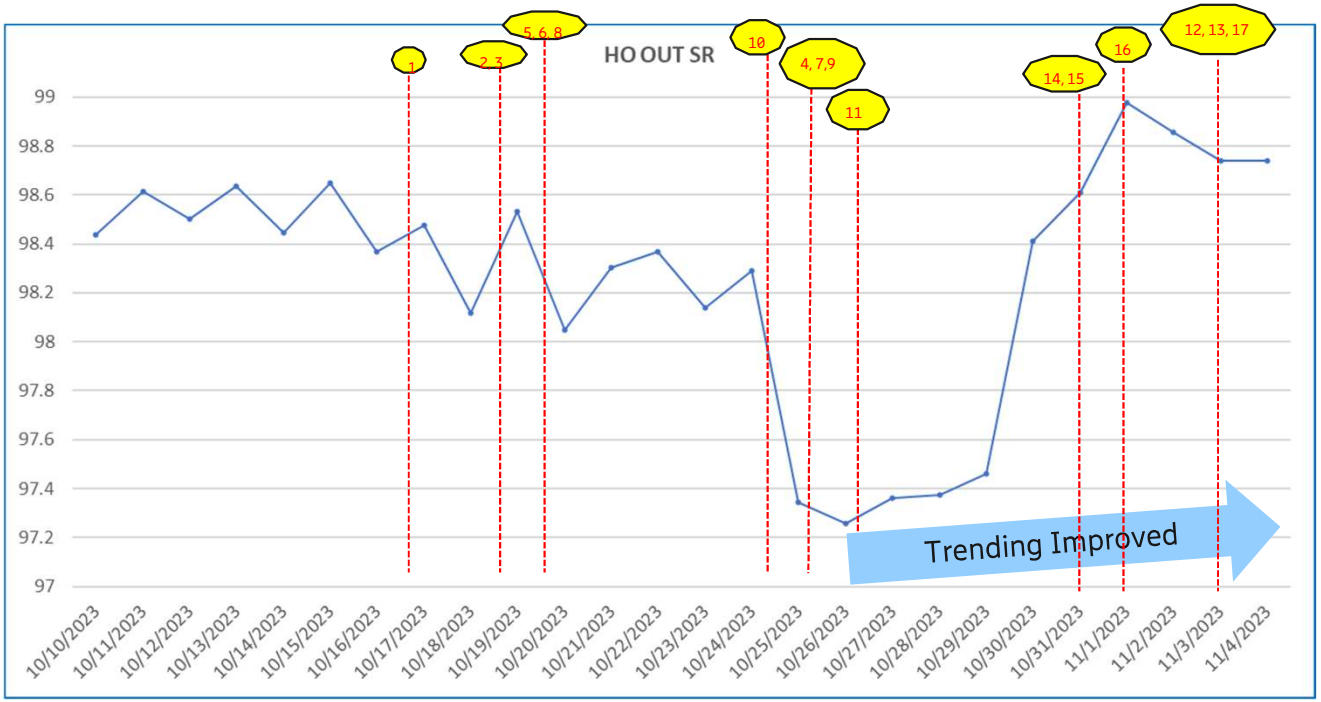
CR Implemented :

1. 20231017_CR_2G_SOUSSE_MONASTIR_BA_List_Correction_DEL&ADD(18 Oct)
2. 20231019_CR_Sousse_Monastir_2G_Parameter_Change(25 Oct)
3. 20231019_2GCR_Sousse_Monastir_Add_oneway_NB_Adj (19 Oct)
4. 20231019_CR_2G_audit_Sousse_Monastir_Parameter Changed (25Oct)
5. 20231019_CR_2G_Parameter_Change (19 Oct)
6. 20231023_CR_2G_MONASTIR&SOUSSE_Change _Parameter_Mobility for_Handover(25Oct)
7. 20231023_CR_2G_MONASTIR&SOUSSE_Change _Parameter_Locating_ConnectionRelease_RLink_timeout (24 Oct)
8. 20231025_CR_2G_021_SOUSSE_Worst_TBF_DL_SR_Ch_Parameter (25 Oct)
9. 220231103_CR_2G_Sousse_Ch_Parameter_Power_Control_Uplink (3 Nov)

CR already implemented on BSC SOUSSE (detail CR implementation on chart above), with result Improvement on CSSR.

PERFORMANCE ACTIONS

2G KPI PERFORMANCE BSC MONASTIR HOSR



CR IMPLEMENTED :

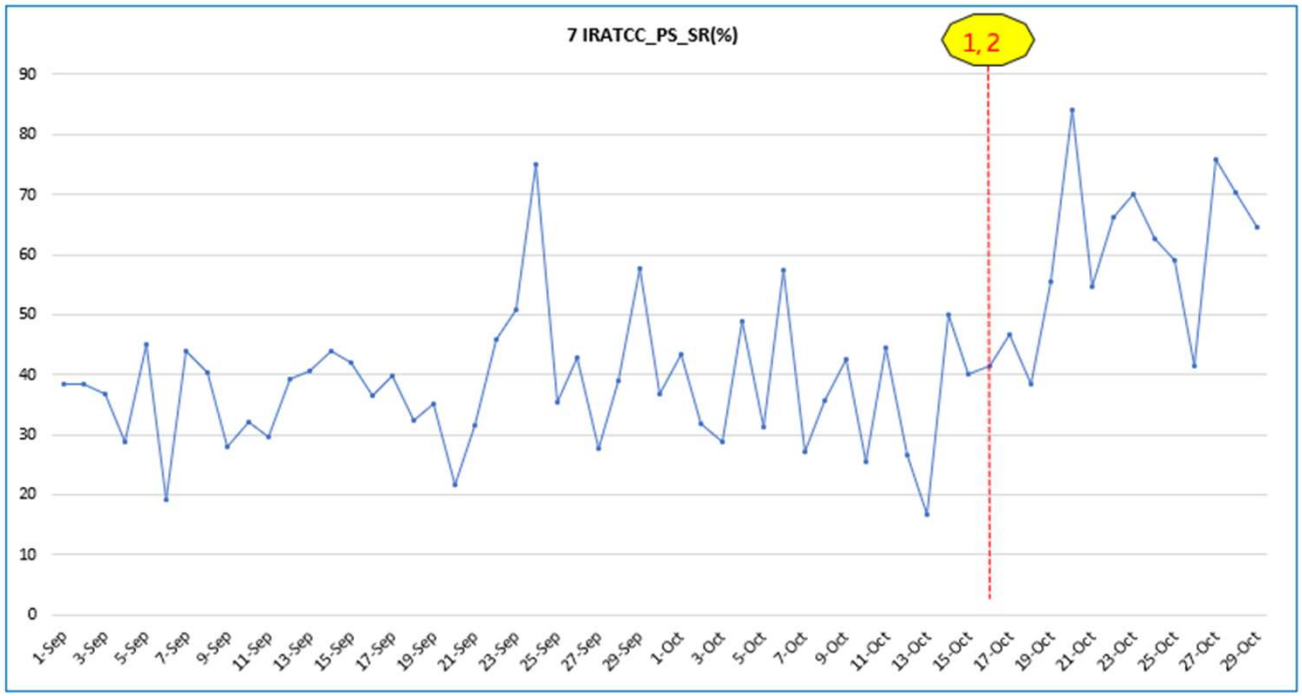
1. 20231013_CR_2G_MONASTIR&SOUSSE_gerancellrelation _create_NB (16 Oct)
2. 20231017_CR_2G_SOUSSE_MONASTIR_BA_List_ Correction_DEL&ADD (18 Oct)
3. 20231017_CR_2G_MONASTIR_Change_Parameter_Gerancell (18 Oct)
4. 20231019_CR_Sousse_Monastir_2G_Parameter_Change(25 Oct)
5. 20231019_2GCR_Sousse_Monastir_Add_oneway_NB_Adj (19 Oct)
6. 20231019_2GCR_Sousse_Monastir_Add_oneway_NB_Adj (19 Oct)
7. 20231019_CR_2G_audit_Sousse_Monastir_Parameter Changed (25 Oct)
8. 20231019_CR_2G_Parameter_Change (19 Oct)
9. 20231023_CR_2G_MONASTIR&SOUSSE_Change _Parameter_Mobility_for_Handover (25 Oct)
10. 20231023_CR_2G_MONASTIR&SOUSSE_Change _Parameter_Locating_ConnectionRelease_RLink_timeout (24 Oct)
11. 20231026_CR_2G_FastReturnToLTE_Sousse_Monastir (26 Oct).
12. 20231027_CR_2G_electricalAntennaTilt_Monastir_Mahdia (3 Nov)
13. 220231027_CR_2G_Monastir_Mahdia_Worst_Cells_Ch_Parameter PC Handover (3 Nov).
14. 20231030_CR_2G_Neighbour_relation_deletion_Monastir_Mahdia (31 Oct)
15. 20231031_CR_2G_Monastir_Mahdia_NCCPERM_update (31 Oct)
16. 20231031_CR_2G_Neighbour_relation_addition_deletion_Monastir _Mahdia (1 Nov).
17. 20231102_CR_2G_BCCH_collisions_retune_Monastir_Mahdia (3 Nov)

CSSR Region Monastir, since W42, Have trending increased. Detail CR implemented, shown in above table.

HOSR improved after add relation, correction NCCPERM.

PERFORAMCE ACTIONS

3G KPI PERFORMANCE BSC MONASTIR IF_HO_CS_SR



CR IMPLEMENTED on Monastir:

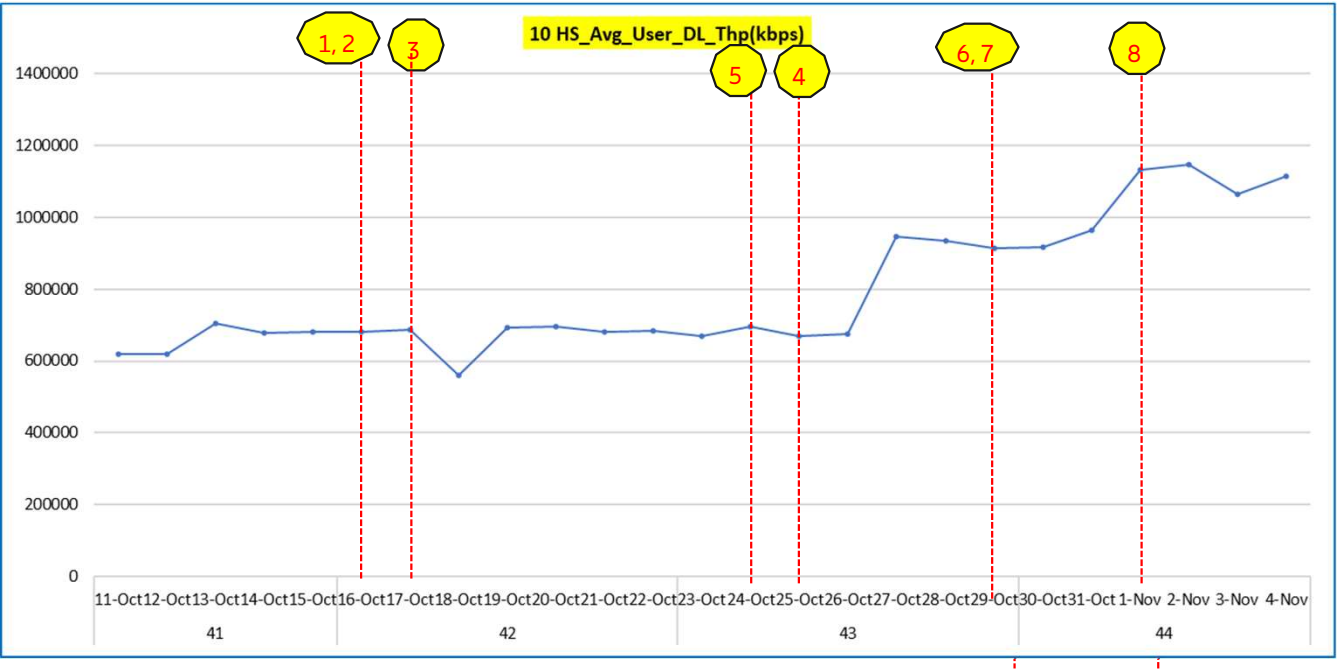
1. CR_3G_9.10 param_ch UtRel_COSITED_INTRA_missing Coverage_Rel_not_def_Souse_Monastir
20231013_CR_3G_Sousse&Monastir_UtranRelation_Add_NB(16 Oct)
2. 20231012_CR_3G_MONASTIR_UtranRelation_Nbr_ADD_ and_DEL(16 Oct)
3. 20231016_CR_3G_MONASTIR_CHANGE Parameter_gsmrelation (23 Oct)
4. 20231017_CR_3G_Monastir_Activate_Features (17 Oct)

5. 20231018_CR_3G_SOUSSE_MONASTIR_parameter_ and_feature_alignment (25 Oct)
6. 20231023_CR_3G_SOUSSE_MONASTIR_Worst_Cell__ param_ch_antenna_tilt (24 Oct)

IRATCC_PS_SR, keep improving since W42 improved after activity add GSM NB adj, corrected parameter on 2G and tuning some parameter related Irat HO.

PERFORMANCE ACTIONS

3G KPI PERFORMANCE BSC MONASTIR HS_Avg_User_Thp(kbps)



CR IMPLEMENTED on Monastir:

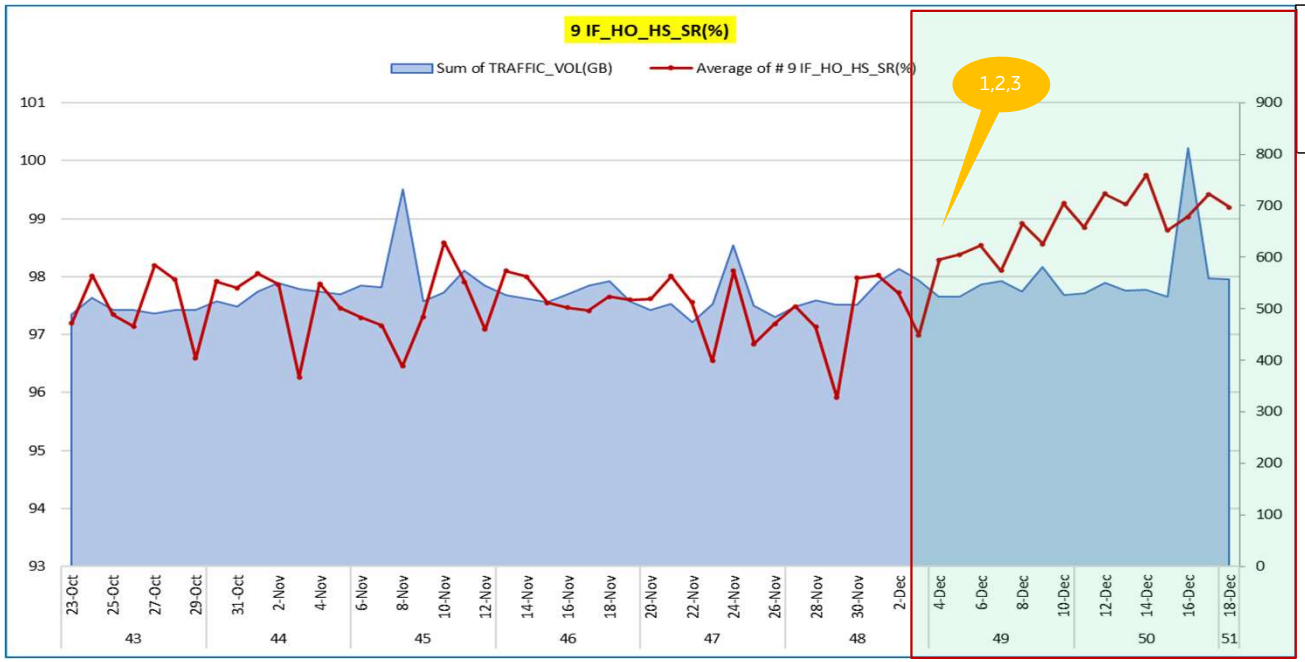
1. 20231013_CR_3G_Sousse&Monastir_UtranRelation_Add_NB(16 Oct)
2. 20231012_CR_3G_MONASTIR_UtranRelation_Nbr_ADD_ and_DEL(16 Oct)
3. 20231017_CR_3G_Monastir_Activate_Features (17 Oct)

4. 20231018_CR_3G_SOUSSE_MONASTIR_parameter_ and_feature_alignment (25 Oct)
5. 20231023_CR_3G_SOUSSE_MONASTIR_Worst_Cell__ param_ch_antenna_tilt (24 Oct).
6. 20231027_CR_3G_Feature_CallReEstablishmentIur_rnc_all (30 oct)
7. 20231027_CR_3G_parameter_and_feature_alignment_Monastir _Mahdia (30 oct)
8. 20231031_CR_3G_param_ch_antenna_tilt (1 Nov)

HS-Avg_User_Thp(kbps) increased after alignment parameter and features in Monastir.

PERFORMANCE ACTIONS

3G KPI PERFORMANCE RNC KAIROUAN_IF_HO_HS_SR



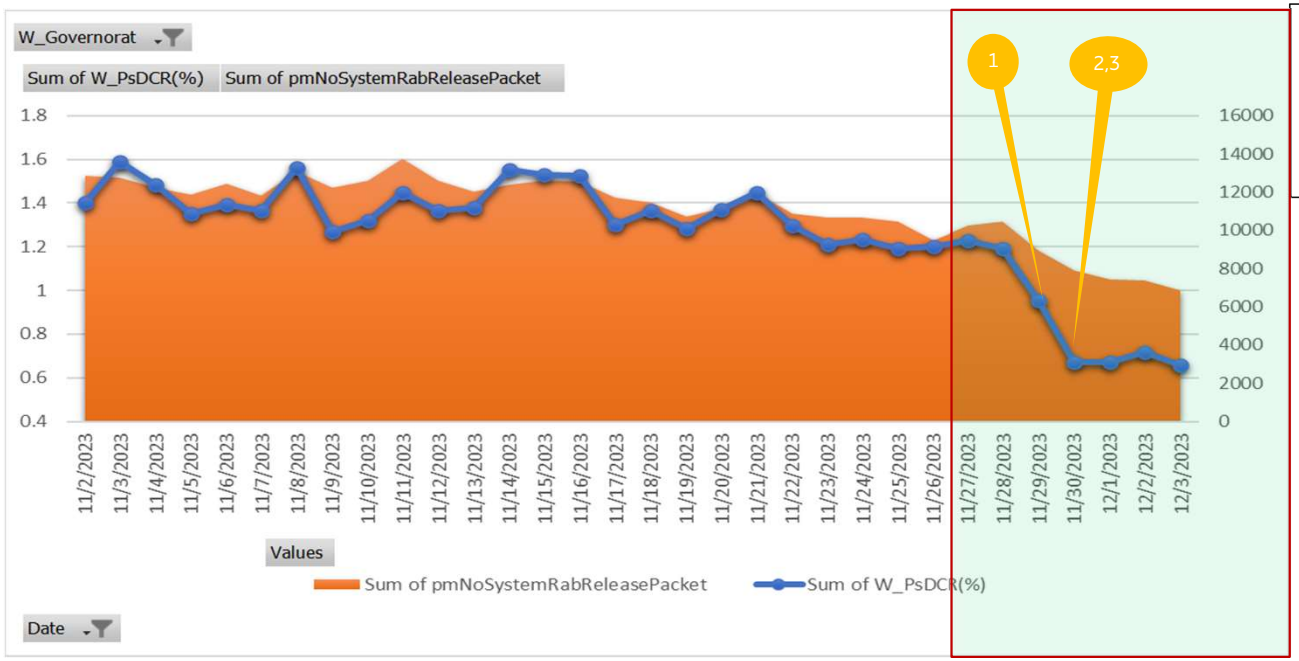
CR IMPLEMENTED :

1. 12072023_releaseRedirectEutraTriggers_tuning_KRN.(8Dec)
2. 12072023_Sf_Adm_Adjust_KRN (8Dec)
3. 12072023_Uerc_UeRcTrCh_KRN_RNC_CR (8Dec)

IF HO_HS_SR in Kairouan improved after tuning parameter .

PERFORMANCE ACTIONS

3G KPI PERFORMANCE MONASTIR REGION : PS DROP(%)



CR IMPLEMENTED :

1. **3G_featCtrlFDpchSrbOnHsdpa_to_OFF(29Nov).**
2. **3G_UeRc_UeRcTrC (30Nov)**
3. **3G_ReleaseRedirectEutraTriggers_param(30Nov)**

- 43% of improvement

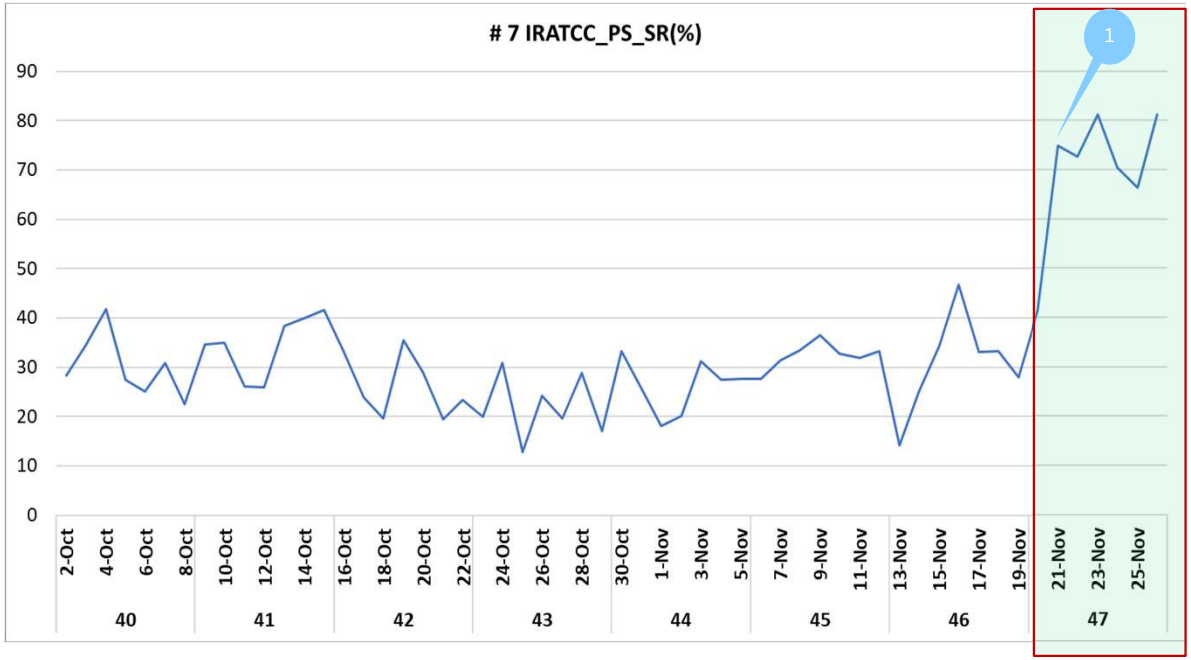
Great improvement in Monastir after implementing CRs related to deactivated featCtrFDpchSrbOnHsdpa, releaseRedirectEutraTrigger_tunning andTuning UeRC Setting.

As the result : CDR_PS has improved by 43% from 1.19% to 0.67%.

#PS Drop considerably reduced.

PERFORMANCE ACTIONS

3G KPI PERFORMANCE RNC SOURNC1_IRATCC_PS_SR(%)



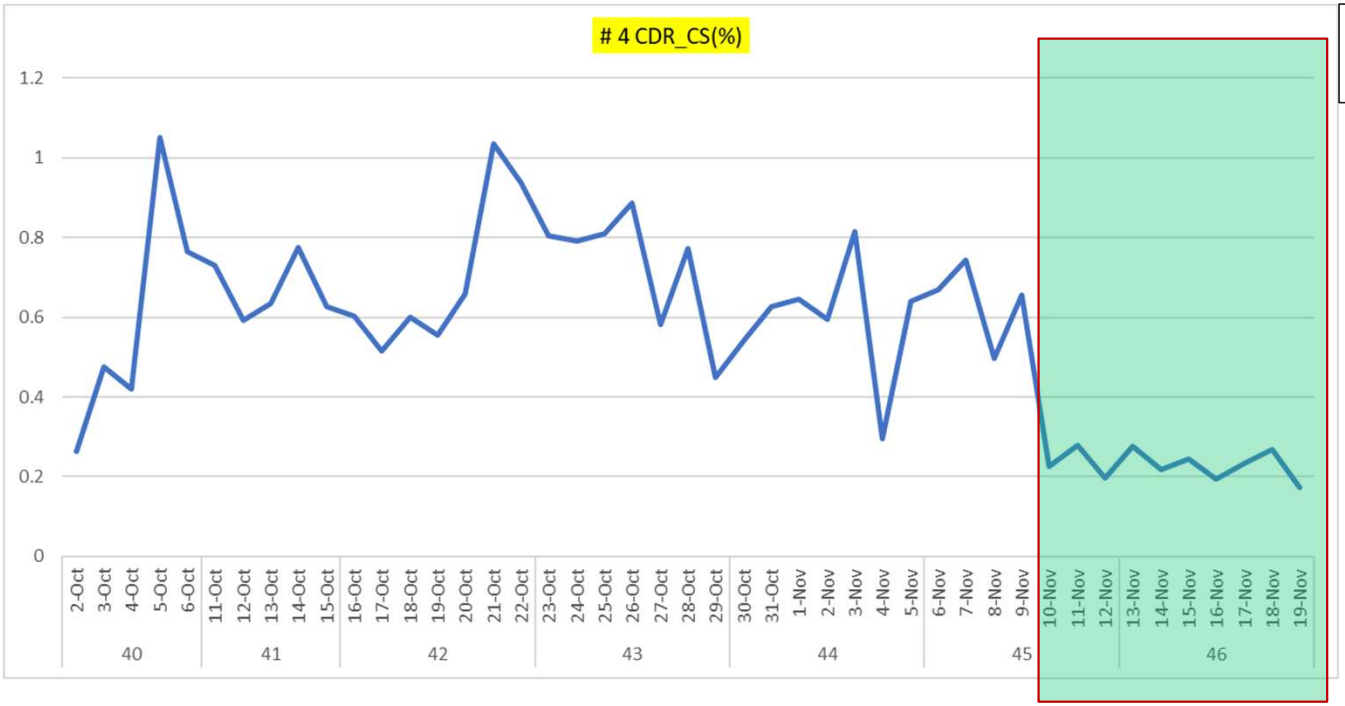
CR IMPLEMENTED :

1. 220231121_CR_3G_Sousse_Act_Feat_DlCodePowerCm

Irat PS SR improved after implement DlCodePowerCm in Sousse.

PERFORMANCE ACTIONS

3G KPI PERFORMANCE RNC Monastir CDR CS



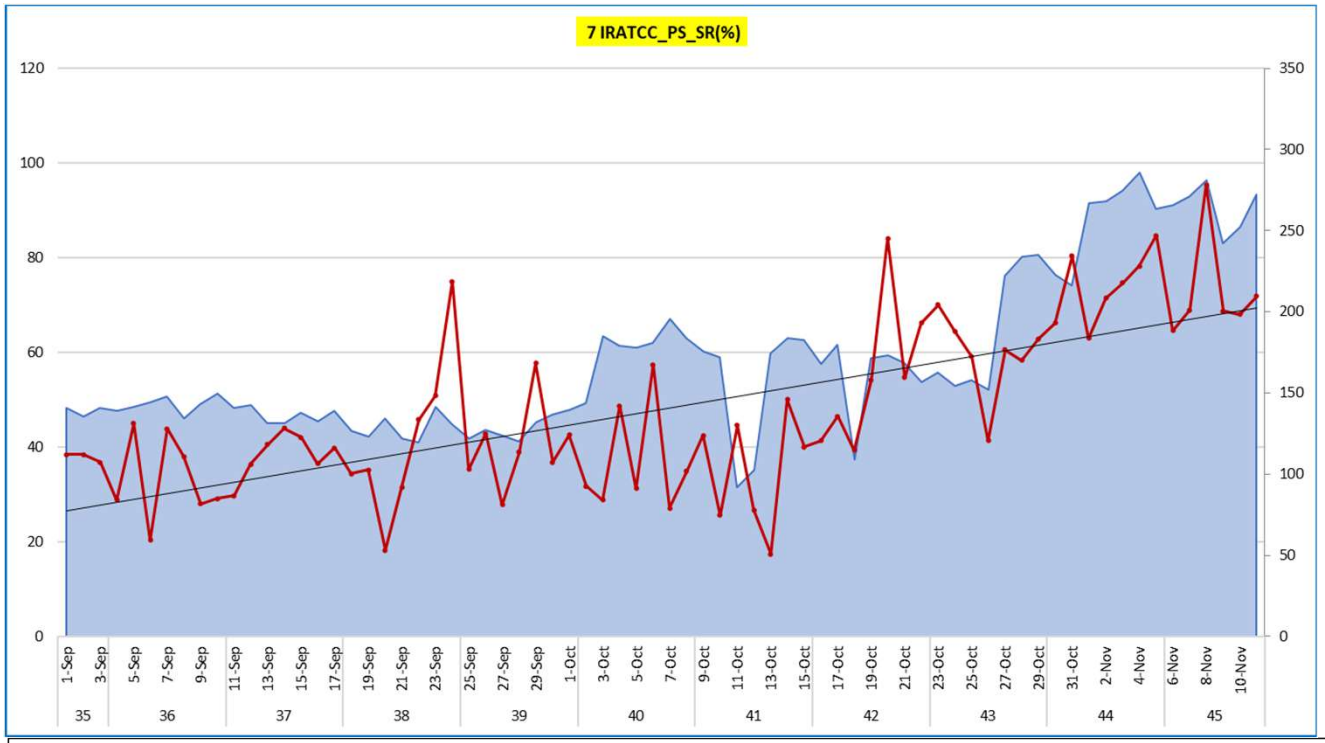
CR IMPLEMENTED :

1.20231107_CR_3G_param_ch_feat_act_Monastir(7Nov)

DCR CS Region Monastir Improved on 10 November 2023 after Implement Radio Link Parameter from 10 to 20, Active set change from 3 to 4 in RNC MOKEVO1. Then continuing tuning CPICH Power, RET.

PERFORMANCE ACTIONS

3G KPI PERFORMANCE RNC EVO IRATCC_PS_SR



CR IMPLEMENTED on Monastir:

1. 20231016_CR_3G_MONASTIR_CHANGE Parameter_gsmrelation(23Oct)
2. 20231023_CR_3G_SOUSSE_MONASTIR_Worst_Cell__param_ch_ antenna_tilt(24Oct)
3. 20231031_CR_UMO302_3G_Nbr_ADD_param_ch_antenna_tilt(31Oct)
4. 20231031_CR_3G_param_ch_antenna_tilt(1Nov)
5. 20231103_CR_UMO061_3G_Nbr_ADD_param_ch_antenna_tilt(6Nov)
6. 20231106_CR_3G_Nbr_Add_Coverage_Rel_add_param_ch_Monastir(6Nov)
7. 20231106_CR_3G_Nbr_ADD_and_Param_CH_and_AntennaTilt(7Nov)
8. 20231107_CR_3G_param_ch_feat_act_Monastir(7Nov)
9. 20231108_CR_UMO362_3G_Nbr_ADD_param_ch_antenna_tilt(8Nov)

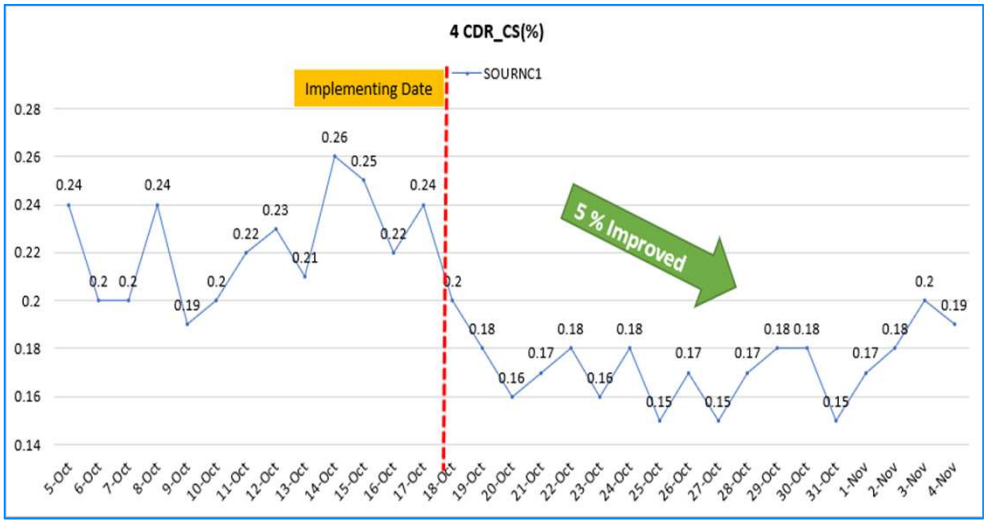
IRATCC_PS_SR, keep improving since W42 improved after activity add GSM NB adj, corrected parameter on 2G and tuning some parameter related Irat HO (HoType). Basically for irat is to audit NB Relation with GSM cells , parameter HO Type and RSCP and ECNO threshold parameter have to set correctly.

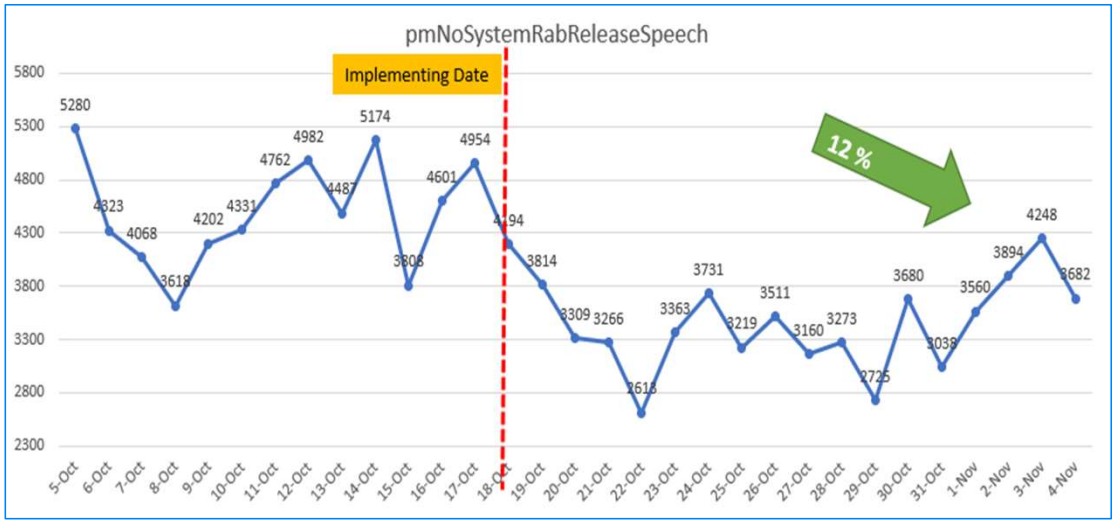
PERFORMANCE ACTIONS
3G_Feature_NwInitCallReest_SOURNC1

CR 3G_013 – 20231018_CR_3G_Feature_NwInitCallReest_soussernc.

- CR 3G Feature implement on Oct 18, 2023. This feature decreases system releases at some of the failure cases appearing in RAN. Some of these cases are then saved from dropping with an end-to-end benefit of continued calls. Call Re-establishment feature by triggering call re-establishment at some failure cases that end with dropped call.

Below chart showing improvement on pmNoSystemRabReleaseSpeech, reflected to CDR CS.





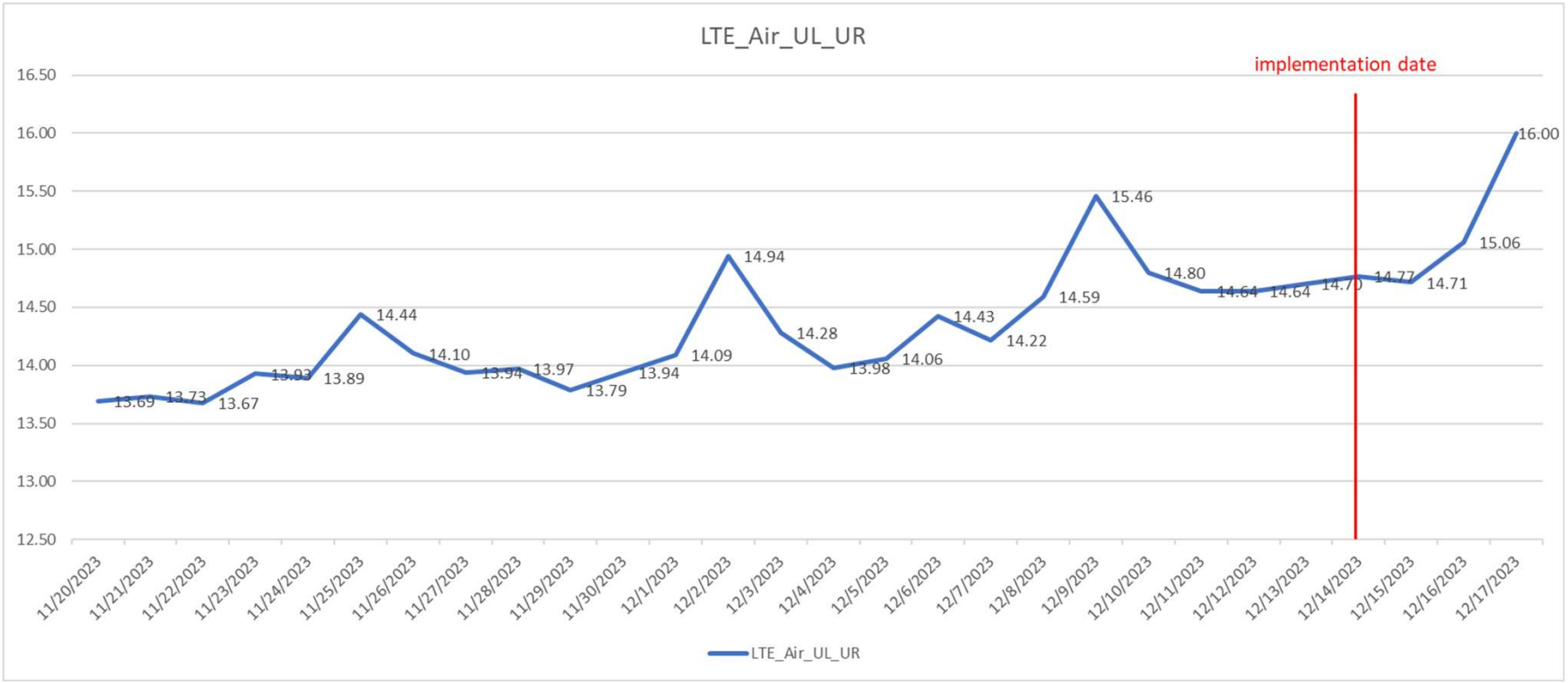
From 17 days monitoring, showing Improvement CDR CS around 5-22% in RNC level. Currently this features already implemented on all RNC, only SOURNC1 just implemented. For other RNC's need to tuning some parameter same or equal with SOURNC1.

From pm counter pmNoSystemRABReleaseSpeech / Number drop reduced around 12-37.7%.

PERFORMANCE ACTIONS

CR 4G Activating features Dynamic Uplink Resource Allocation and Dynamic Pucch

CR 4G_107, CR 4G_108 – Activating features Dynamic Uplink Resource Allocation (45 sites) and Dynamic Pucch (7 sites) for increasing UL PRB Utilization, implemented 12/14/2023.

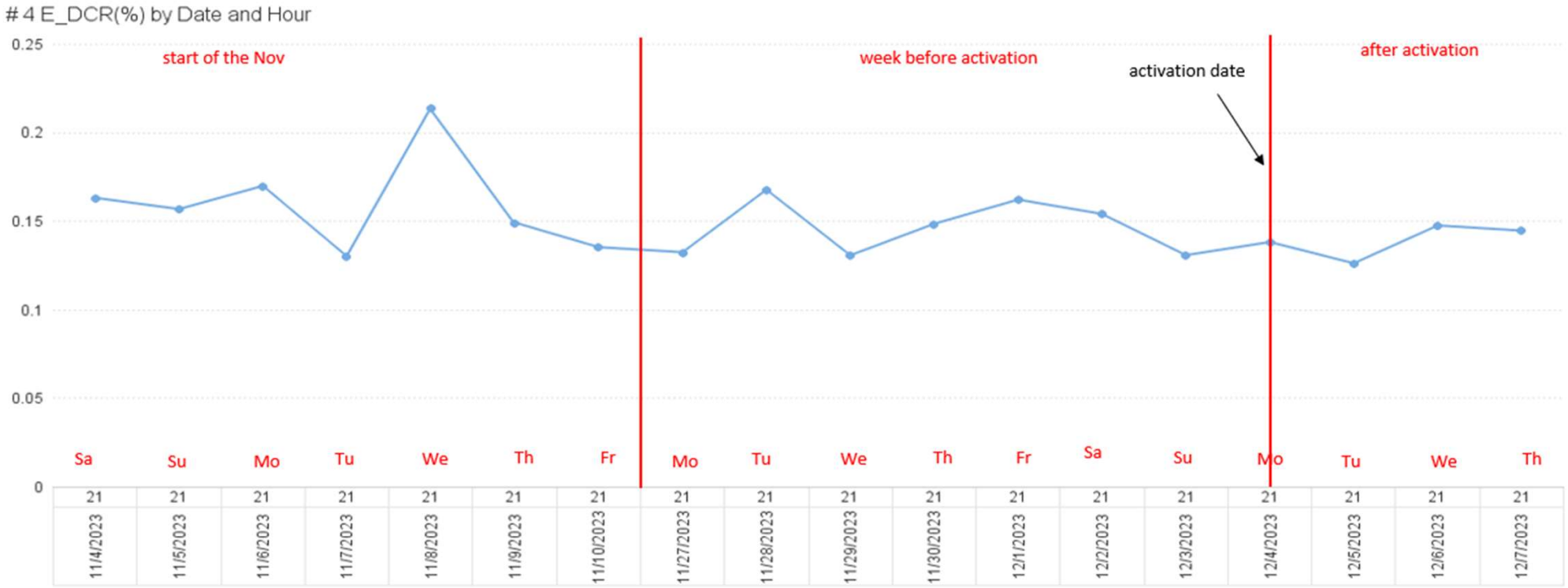


After activation increased percentage of LTE UL Air interface Utilization 14,7% -> 16%

PERFORMANCE ACTIONS

CR 4G Activating feature Prioritized SR Scheduling

CR 4G_077 – Activating feature Prioritized SR Scheduling (25 sites), implemented 12/04/2023.

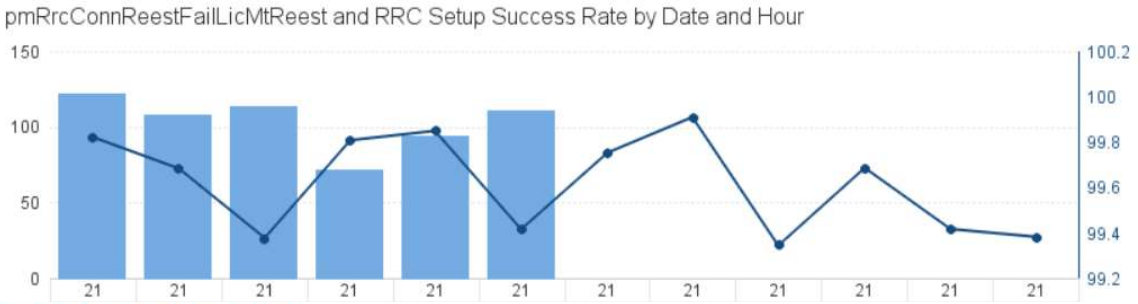


After activation a little improve in DCR

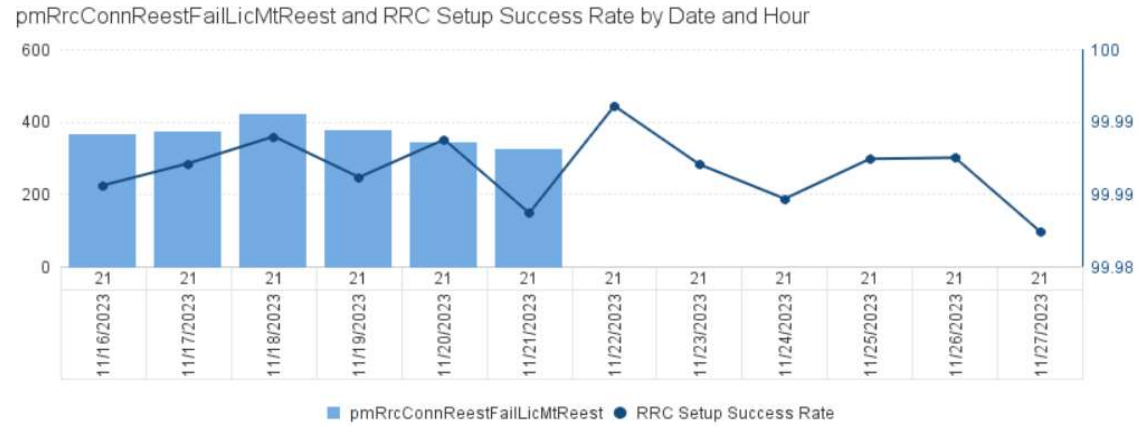
PERFORMANCE ACTIONS

CR 4G Activate Multi-Target RRC Connection Re-Establishment

B4G3G_Karker



B4G3G_Moknine_Stade

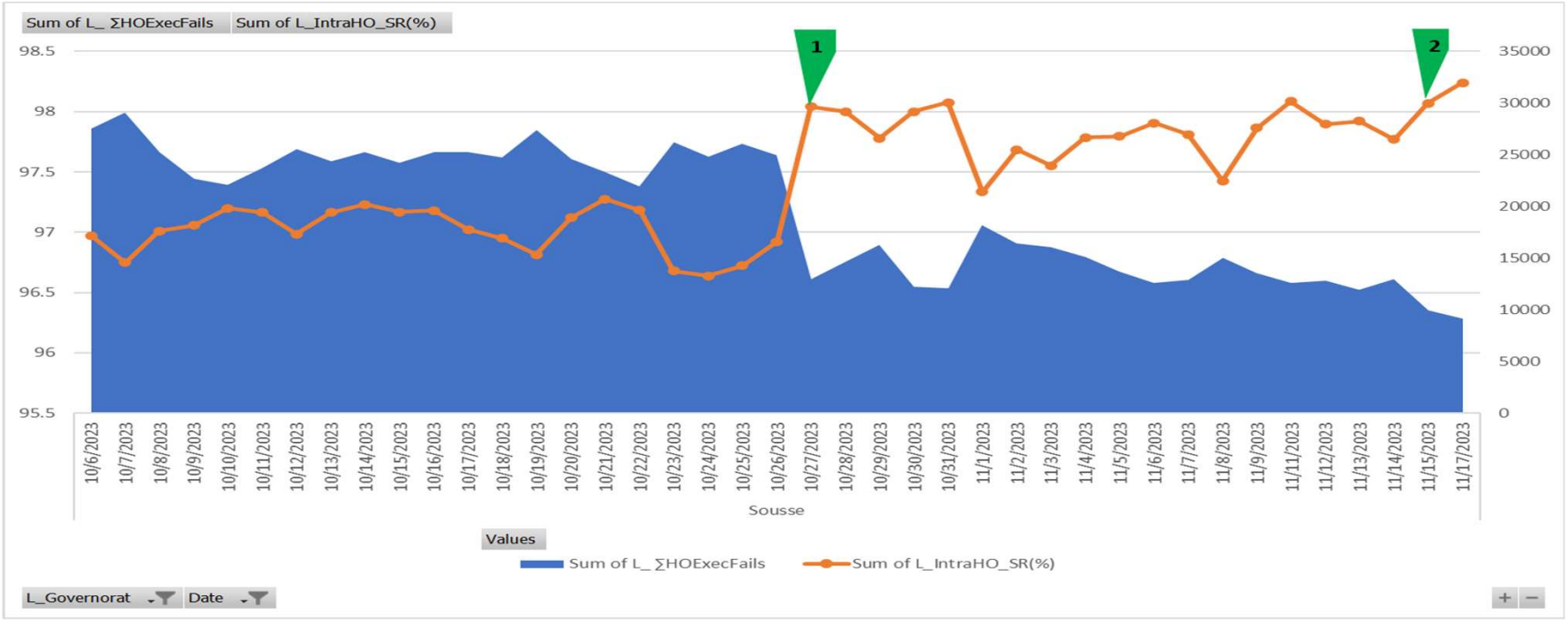


The feature Multi-Target RRC Connection Re-Establishment was activated on the sites B4G3G_Karker and B4G3G_Moknine_Stade.

Activation doesn't affect the KPI RRC_SR, only reducing the number of counter pmRrcConnReestFailLicMtReest.

Activation feature recommended together with activating VoLTE

PERFORMANCE ACTIONS :

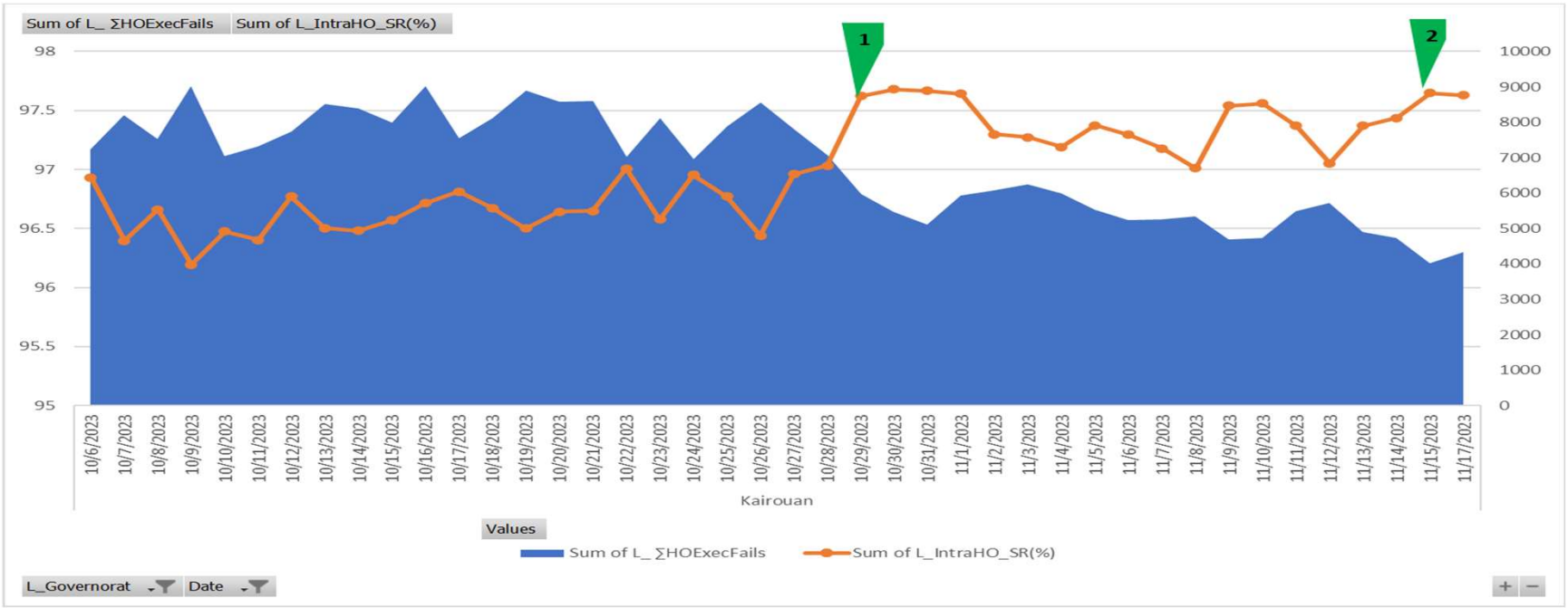


- In Sousse area, 2 CRs (1 and 2) related to Eutrancellrelation setting were implemented to improve Lte Mobility.

As a results : - Lte HOSR has improved by 1% in avg from 97.2% to 98.2%.

- Lte HO Exec fails have reduced by 60% in avg from 25K to 10K.

PERFORMANCE ACTIONS :



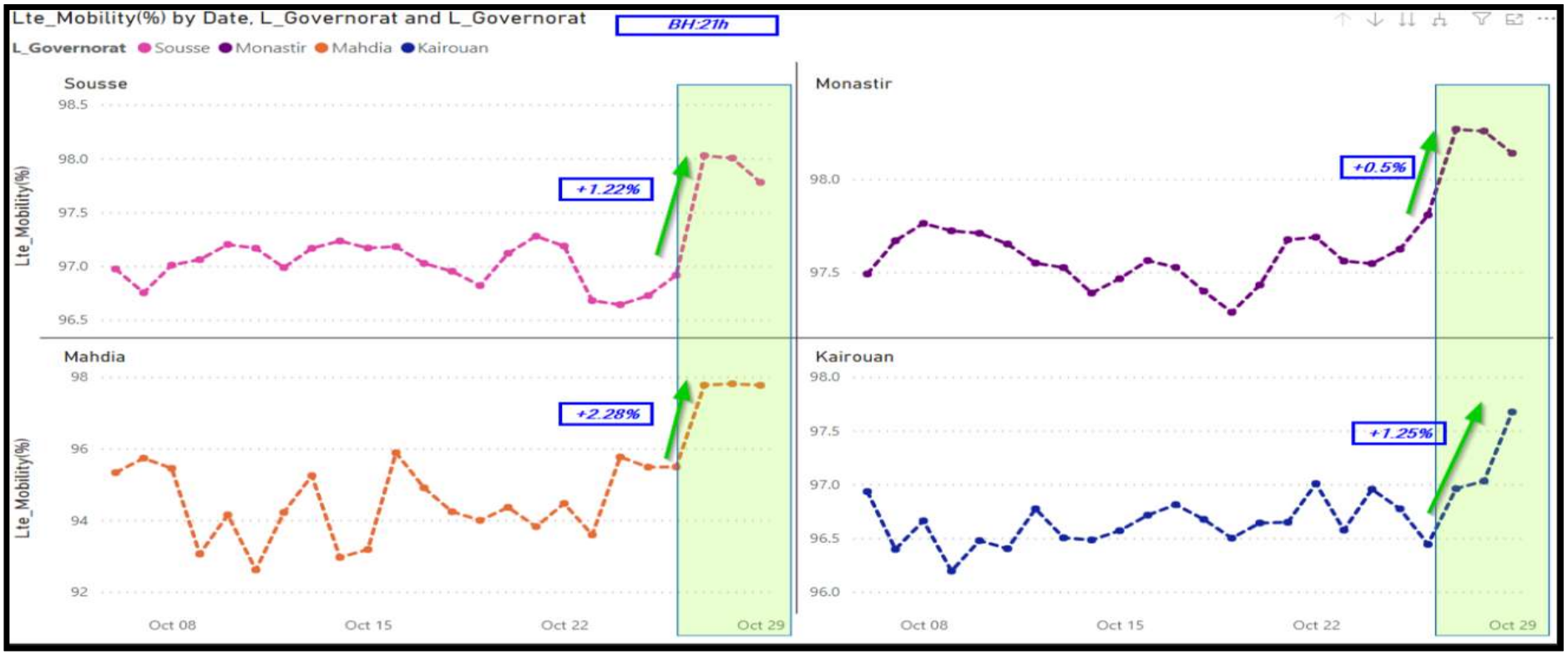
- In Kairouan area, 2 CRs (1 and 2) related to Eutrancellrelation setting were implemented to improve Lte Mobility.

As a results : - Lte HOSR has improved by 1.2% in avg from 96.40% to 97.60%.

- Lte HO Exec fails have reduced by 50% in avg from 8K to 4K.

PERFORAMCE ACTIONS

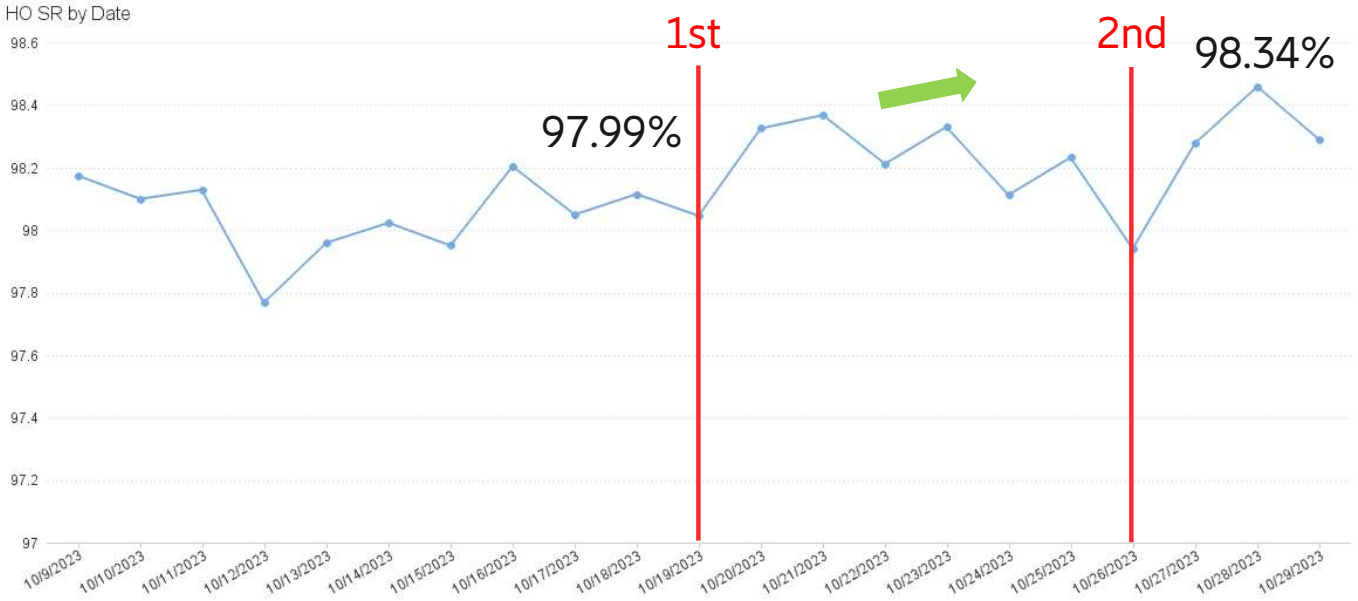
- 20231027_CR_4G_IshoAllowed_Offset_EutranCellRelation_ALL bring good improvement for Lte Mobility KPI.



PERFORAMCE ACTIONS
CR 4G Testing IFLB parameters in the Test Cluster

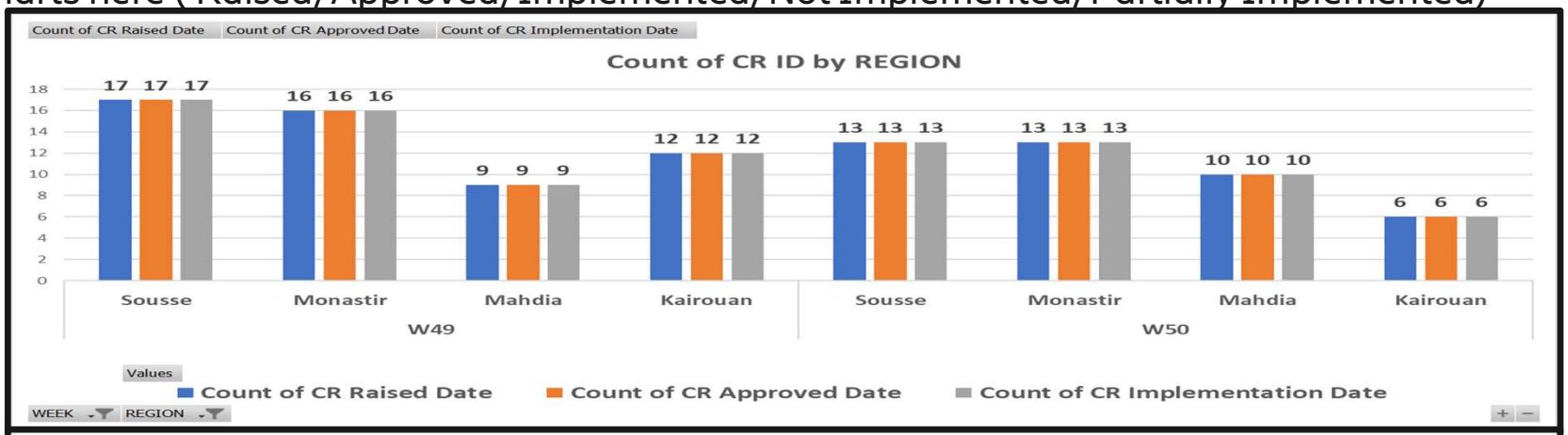
CR 4G_011 – 20231016_CR_4G_IFLB_Test_zone_Msaken

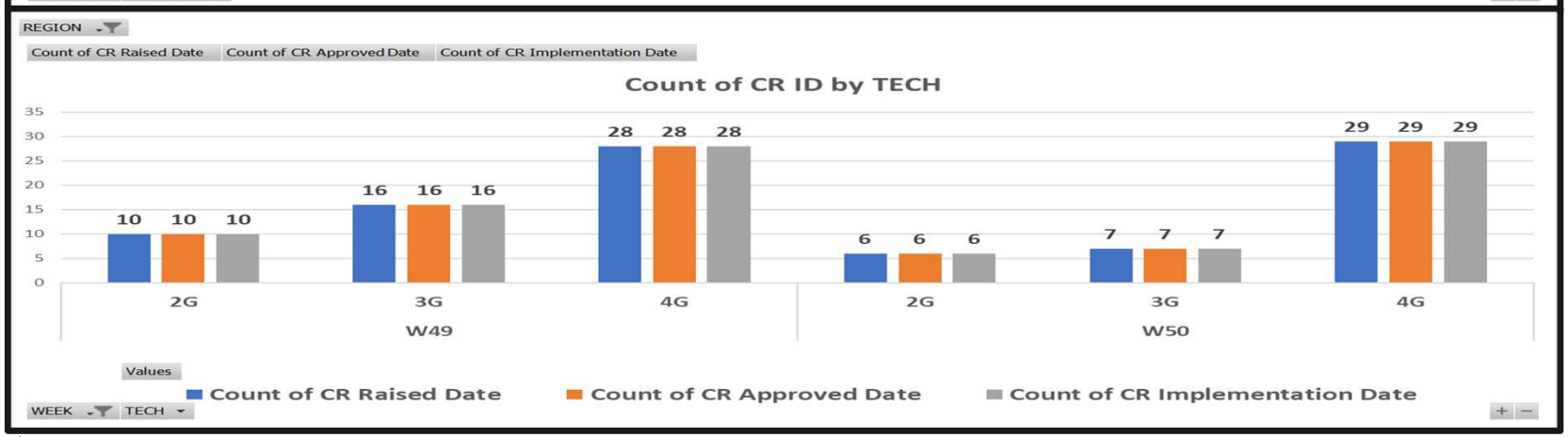
- First part - changing IFLB parameters on the Testing Cluster Msaken, implemented 10/19/2023. Second part – activating additional IFLB features (Accelerated IFLB, Carrier Aggregation-Aware IFLB, UE Throughput-Aware IFLB), implemented on 10/26/2023.
- The chart below shows improvement on HO_Success_Rate after the implementation.



CR STATUS

- Charts here (Raised/Approved/Implemented/Not Implemented/Partially Implemented)

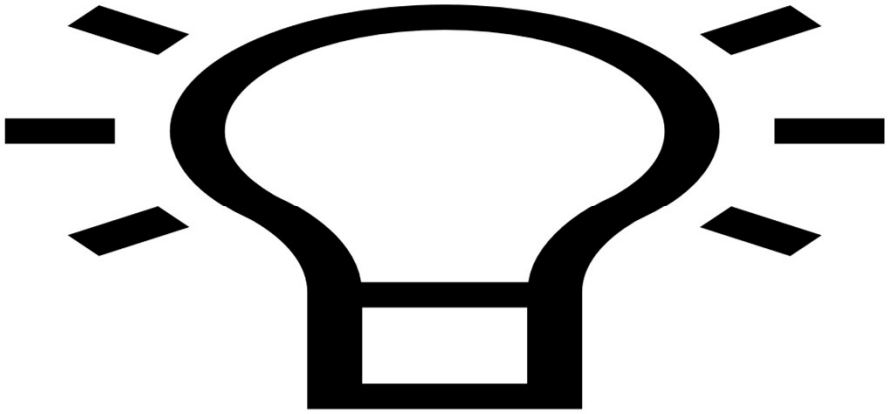




ACTION PLAN

- Continue activities to improve KPI RRC_SR, Erab_SR, HO_SR and DCR in 4G
- Tuning parameters for improving Mobility and Retainability on worst cells
- Alignment features Variable SR and CQI Periodicity and Downlink\Uplink Coordinated Multi-Point on the sites in all regions
- Tuning parameters for improving Accessibility and Retainability on worst cells
- Continue Add NB and delete unnecessary adj to improve KPI HOSR and DCR in 2G and 3G.
- Continue Tuning Idle mode/Cell selection, Re-selection parameter to improve 2G accessibility and retainability based on worst performing cells.
- Continue Tuning freq BCCH, DCHNO to improve Accessibility and Retainability.
- Optimize parameter related Mobility 3G (HoType, usedFreqThresh2dEcno, usedFreqThresh2dRscp, Event 1b), include parameter IRAT, IFHO, ISHO and Cell Change on PS Handover.
- 3G CPICH and RET OPTIMIZATION ON DENSE URBAN ZONES (continue) to improve Retainability, Accessibility and reduce pilot pollution.
- Continue optimization activity based on Worst performing cells to improve accessibility, retainability and mobility.
- Continue Tunning RET in 2G, 3G to improve KPI.
- Tuning parameters for improving PRB Utilization
- Testing ScelldynamicCA_Candidate Feature in Kantawi Cluster sousse to maximum CA UE penetration in the network and improve DL Throughput
- Keep Testing Dynamic PUCCH Feature
- Trial Feature GPRS/EGPRS DL Power Control in Mahdia
- Trial Feature Efficiency Packet Data & Expanded_PDCH_address_space in Kairouan
- Activated feature ReducedPowerLevelAfterHandover in all regions.
- Deep Analysis of Drive test After in Sousse/Monastir/Mahdia/Kairouan with ensuring 0 drops in highway and main roads.

QUESTIONS



https://www.ericsson.com/en/network-automation/network-optimization